

EV-C3E

RMT-463

SERVICE MANUAL

AEP Model
UK Model
E Model



Video 8

U MECHANISM

SPECIFICATIONS

MECHANICAL ADJUSTMENT

As to the mechanical adjustment and check and parts replacement, refer to the separate "8mm Video Mechanical Adjustment MANUAL III

U mechanism".

Parts No. 9-972-732-11

System

Video recording system

Rotary two-head helical scanning FM system

Video signal

PAL colour, CCIR standards

Audio recording system

Rotary head, FM system

Usable cassette

8 mm format video tapes

Tape speed

SP: 20.051 mm/sec.

LP: 10.058 mm/sec.

Maximum recording/playback time

SP: 1 hour 30 min. (with Sony P5-90)

LP: 3 hours (with Sony P5-90)

Fast-forward/rewind time

Approx. 4.5 min. (with Sony P5-90)

Inputs and outputs

LINE IN

VIDEO: Phono jack 1 Vp-p, 75 ohms, unbalanced, sync negative

AUDIO: Phono jack 47 kilohms, -7.5 dBs (0 dBs = 0.775 V rms)

LINE OUT

VIDEO: Phono jack 1 Vp-p, 75 ohms, unbalanced, sync negative

AUDIO: Phono jack

Output impedance less than 2 kilohms, -7.5 dBs with 47 kilohms load unbalanced

MONITOR OUT

EURO-AV: 21-pin

Video out: pin 19

1 Vp-p, 75 ohms, unbalanced, sync negative

Audio out: pins 1 and 3
Output impedance less than 1 kilohms -6 dBs with 10 kilohms load unbalanced

CONTROL L (LANG)

5-pin DIN

RF output signal

UHF channels B30/E30-B39/E39 (variable)

Aerial input/output

75 ohms asymmetrical aerial sockets

— Continued on page 2 —

● SERVICE OF REMOTE COMMANDER RMT-463

Remote commander RMT-463 is available as a unit. But as individual parts the battery case lid of commander is only available.



8 VIDEO CASSETTE RECORDER

SONY®

General

| | |
|-----------------------|---|
| Power requirements | AC 220–240 V 50 Hz |
| Power consumption | 13 W |
| Operating temperature | 5°C to 40°C (41°F to 104°F) |
| Storage temperature | –20°C to +60°C (–40°F to +104°F) |
| Dimensions | Approx. 178 × 88 × 255 mm (7 ¹ / ₈ × 3 ¹ / ₂ × 10 ¹ / ₈ inches) (w/h/d) including the projecting parts and controls |
| Weight | Approx. 2.2 kg (4 lb 14 oz) |

Remote commander RMT-463



| | |
|-----------------------|--|
| Remote control system | Infrared control |
| Command mode | VTR-2 |
| Power requirements | 3 V DC, using two IEC designation R6 batteries |
| Dimensions | Approx. 40 × 18 × 175 mm (1 ⁵ / ₈ × 3/ ₄ × 7 inches) |
| Weight | Approx. 55 g (5 oz.) without batteries |

Design and specifications are subject to change without notice.

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SERVICING NOTE

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

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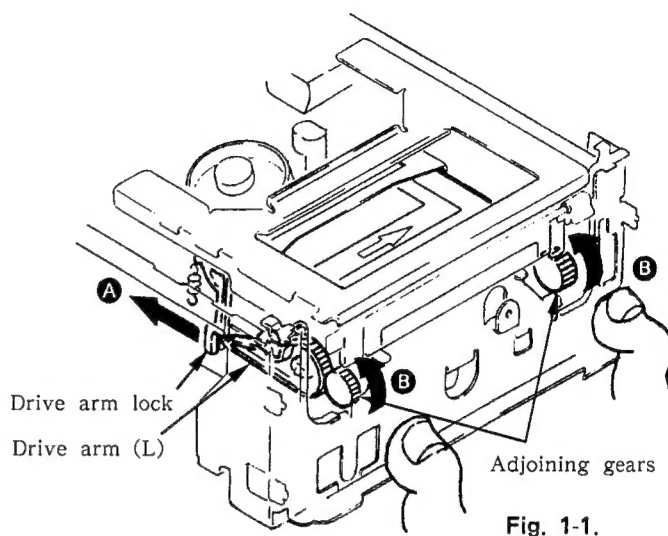
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SECTION 1 SERVICE NOTE

1-1.

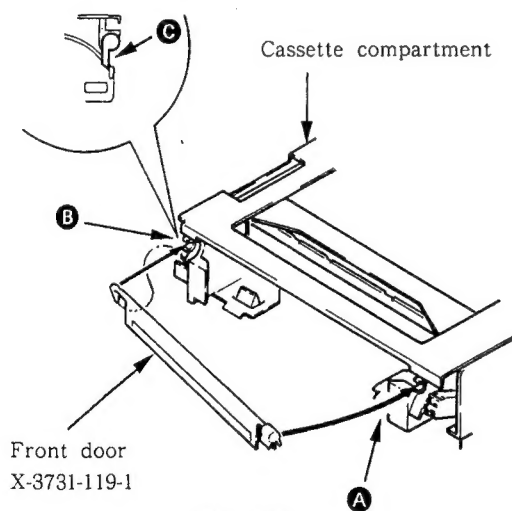
Ejecting a Malfunctioning Videocassette

- A. Remove Front Panel and FR-38 board.
- B. If the videocassette cannot be ejected because the videotape is still wrapped around the drum, remove the CM-13 board on the lower part of the mechanical section. Turn the capstan motor wheel in either direction and turn either the S or T reel to return the tape to the cassette. After the tape is back inside the cassette, proceed to step "C" if necessary.
- C. If the videotape is in the cassette half and cannot be ejected :
 - 1) Remove the front panel. Remove the drive arm lock (located between the L frame and the left part of the cassette control section) away from the drive arm (L) in the direction of the arrow **A**.
 - 2) Use both thumbs to turn the adjoining gears in the direction of arrow **B**.



1-2. Replacing the Videocassette Door Assembly

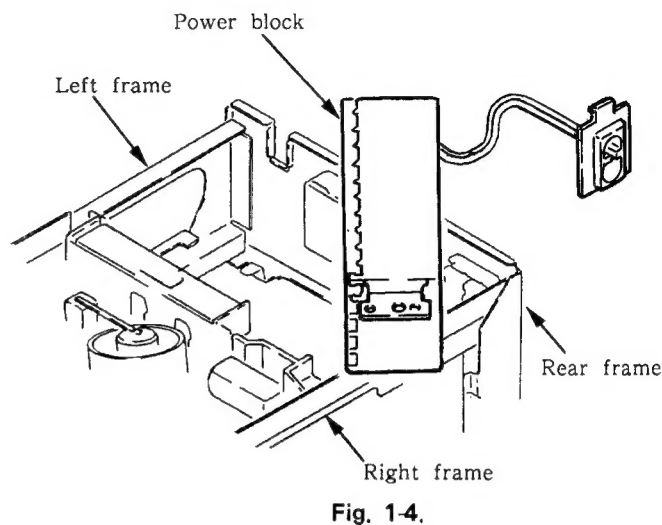
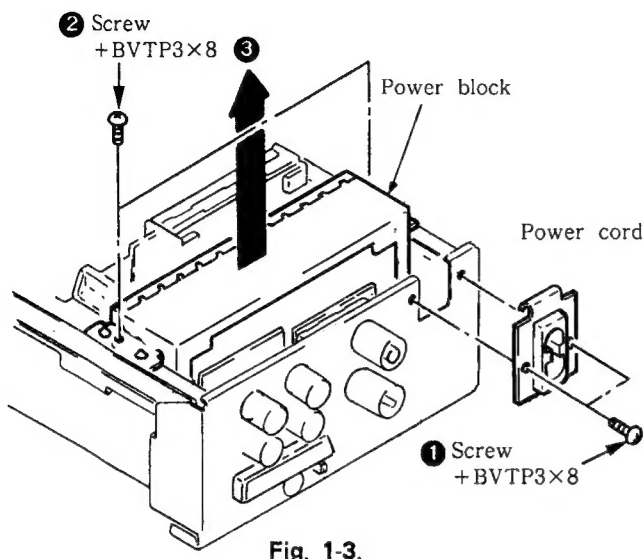
- 1) Remove the front panel.
- 2) Remove the videocassette door assembly first from part **A**, then from part **B**.



- 3) When reinstalling the front door assembly, install at part **B** first. Install it on the fastener of part **C** as shown in the figure. Then install at part **A** with the door assembly lowered vertically.

1-3.

Service Position (Power Block)



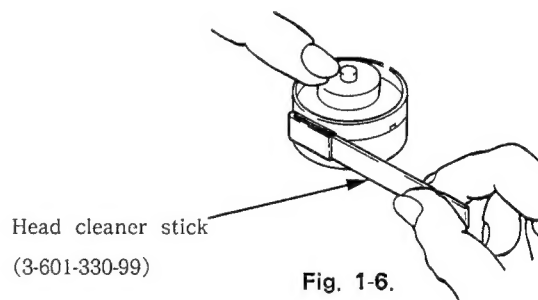
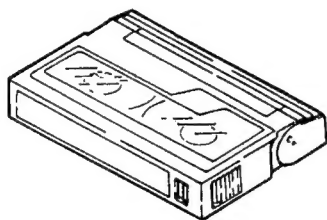
1-4.

Cleaning the Video Head and Transport System

Procedure 1

[Using a cleaning tape]

- Use the V8-25CLH cleaning tape. (Before using the cleaning tape, read the instructions carefully.)



[Cleaning the transport system]

- ① Apply the cleaning fluid to the head cleaner stick.
- ② Use the head cleaner stick to clean the tape guide, pinch roller, and other parts that come in direct contact with the tape.

Procedure 2

[Using cleaning fluid]

- ① Remove the video deck's upper casing.
- ② Apply the cleaning fluid to the head cleaner stick (Ref. No. 3-601-330-99).
- ③ As shown in the figure on the right, gently contact the head cleaner stick to the video head, and clean while turning the rubber part on the top of the rotating drum.

1-5.

Replacing the Rotating Drum

Procedure 3

Precautions

- Be especially careful when handling the video head and terminals.
- Hold the drum by the upper part (Part B), do not touch the side of the drum (Part A) directly. See Fig. 1-7.

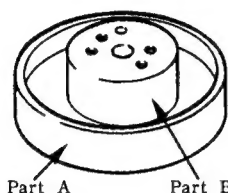


Fig. 1-7.

Removing the rotating drum

- ① As shown in Fig. 1-8, remove the two short screws (2×4).
- ② Completely remove the eight soldering points on the rotating drum's board. Refer to Fig. 1-8.

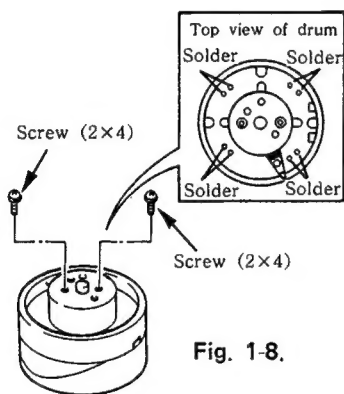


Fig. 1-8.

- ③ While referring to Fig. 1-9, use the two short screws supplied with the jig (which comes with the spare rotating drum) to fasten the jig to the drum. Then screw in the long screw until the drum is removed.

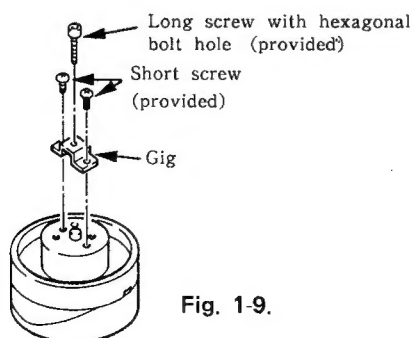


Fig. 1-9.

Installing the new drum

- ① Clean the flange surface and the new rotating drum's bottom surface. Refer to Fig. 1-10.
- ② While referring to Fig. 1-10, insert the supplied shaft through the jig and into the positioning hole of the lower drum. Slip the shaft into new rotating drum's positioning hole and gently set the rotating drum.

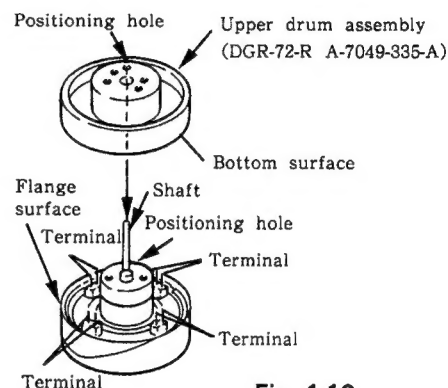


Fig. 1-10.

- ③ With the shaft still inserted in the positioning hole, use your hand to push down the rotating drum lightly. If the drum does not go down completely, refer to Fig. 1-11, and gradually tighten the two long screws (2×5) alternately to fasten the rotating drum.
- ④ Take out the shaft. If the shaft cannot be readily taken out, redo the procedure from step ②.

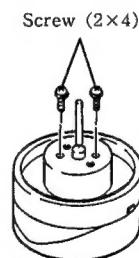


Fig. 1-11.

- ⑤ While referring to Fig. 1-8, solder the board's eight places and eight terminals.
- ⑥ After the rotating drum is replaced, use a head cleaner stick to clean the video head and transport system. Follow Procedure 2 of "Cleaning the video head and transport system."

Warning

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

NOTICE FOR CUSTOMERS IN THE UNITED KINGDOM

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

| | |
|--------|---------|
| Blue: | Neutral |
| Brown: | Live |

As the colours of the mains wires in the mains lead of this apparatus may not correspond to the coloured markings identifying the terminals in your plug proceed as follows: The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black. The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red. Do not connect either wire to the earth terminal in the plug which is marked by the letter E or by the safety earth symbol or coloured green or green-and-yellow.

Caution

Television programmes, films, video tapes and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provisions of the copyright laws. Also, use of this recorder with cable television transmission may require authorization from the cable television transmitter and/or programme owner.

Safety information

To prevent fire or electric shock and to extend the life of the unit, please follow the safety procedures below.

For safe operation

- Operate this unit on 220–240 V AC, 50 Hz.
- Unplug this unit if any liquid or solid object falls in it — have it checked by qualified personnel immediately.
- Unplug this unit if it not going to be used for several days.
- Pull the plug out to disconnect this unit — do not pull on the power cord.
- This unit is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the unit itself has been turned off.
- Never put heavy objects on this unit.

For safe installation

- Install this unit so the ventilation openings are not blocked.
- Install this unit away from hot, humid, or excessively dusty places.
- Install this unit away from mechanical vibrations.
- Install this unit on a flat surface and in a horizontal position.
- Install this unit and store tapes away from equipment with strong magnetic fields such as stereo speakers.
- Install this unit away from an AM receiver.

For safe maintenance

- Clean this unit with a dry, soft cloth or a soft cloth slightly moistened with a mild detergent. Never use solvents such as alcohol or benzine.

For safe transportation

- Use the carton and packing materials to transport the unit.

SECTION 2 GENERAL

This section is extracted from instruction manual.

Overview of this VTR

Thank you for purchasing this 8 mm Sony Video Cassette Recorder. You now own a VTR with which you can easily playback and edit tapes you made with your 8 mm camcorder. Some of the ways that you can edit your homemade tapes include:


- Assemble editing — to gather recordings from several tapes onto a blank tape
- Insert editing — to insert a recording into a previously recorded tape

Please remember that you can only use 8 mm-format video tapes with this VTR and that it is not possible to use PCM recording/playback available on some 8 mm recorders. The PCM sound recorded or after-recorded with other recorder cannot be played back with this VTR. You will be able to record tapes in both SP (standard play) and LP (long play) modes.

Using this manual

This manual is organized so all the essential information on how to install and operate your VTR is included in the first three sections of this manual. Look under **Advanced operation** to learn sophisticated tasks such as how to edit tapes using the VTR. Refer to the trouble-shooting section or call your local Sony service facility if you have any problems in operating the VTR.

When you are reading through this manual, please remember that:

- Buttons and settings on the VTR are in capital letters:
e.g. Press ON/STANDBY.
- Numbers in illustrations correspond to numbers in the text.
- Notes are separated from the text with a line on the top and bottom.
- The arrow  indicates signal flow.

Supplied accessories

Please check to make sure that the following accessories are supplied with your VTR.

- 1 Remote Commander (RMT-463)
- 2 R6 (size AA) batteries
- 1 AC power cord (mains lead)
- 1 cable (75-ohms coaxial with IEC connectors)
- 1 cable (audio-video connecting, 2 phono plugs to 2 phono plugs)
- 1 screwdriver

Labeling the parts

On the front

(A-1)

1 ON/STANDBY switch

Press to turn the VTR on. The button will light up green when the power is on and light up red when the VTR is in standby.

2 Remote sensor

This sensor "detects" the commands from your Remote Commander.

3 Cassette compartment

Insert 8 mm format video tapes in here.

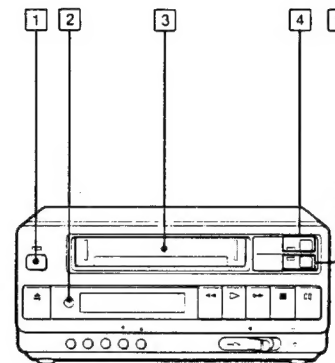
4 SYNCHRO EDIT button

Press when you want to use the SYNCHRO EDIT mode. The button will be lit when this mode is on.

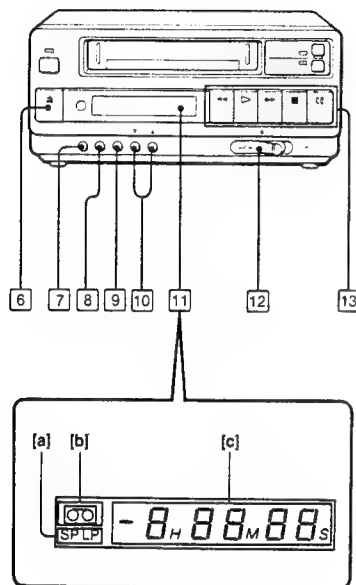
5 EDIT button

Press to activate the EDIT mode when you are editing tapes to improve the picture. The button will be lit when this mode is on. Normally keep this mode turned off.

(A-1)



(A-2)

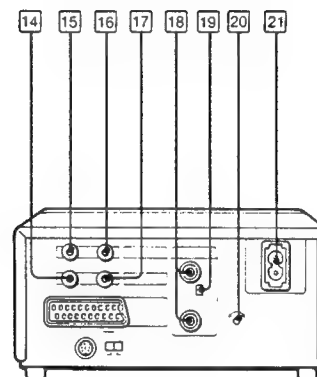


Labeling the parts

(A-2)

- 6 EJECT button**
Press to remove the tape from the cassette compartment.
- 7 SP/LP button**
Press to choose between the standard play mode and the long play mode for recording.
- 8 COUNTER RESET button**
Press to reset the tape counter to "0H00M00S".
- 9 GO TO ZERO button**
Press to advance or rewind the tape to the "0H00M00S" point.
- 10 SLOW/STILL ADJUST ▼/▲ buttons**
Press ▼ or ▲ to adjust streaks in the picture or vertical shifts in the picture during the slow motion/still picture modes.
- 11 Display window**
These indicators will appear in the display window when the VTR is on.
[a] SP/LP recording/playback mode indicator
[b] Cassette indicator
[c] Tape counter
- 12 ● REC switch**
Slide to the right to start recording.
- 13 Tape transport buttons**
Use these buttons to manipulate the tape:
◀ REW (rewind)
▷ PLAY
▶▶ FF (fast forward)
■ STOP
⏏ PAUSE/STILL

(A-3)



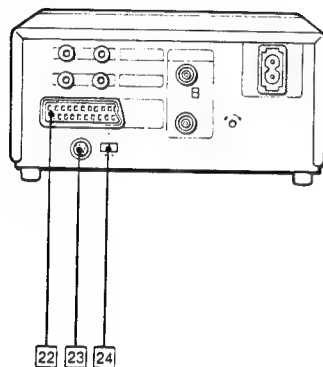
Labeling the parts

On the back

(A-3)

- 14 LINE OUT AUDIO jack (phono type)**
Sends audio signals to your TV or second VTR.
- 15 LINE IN AUDIO jack (phono type)**
Receives audio signals from your TV or second VTR.
- 16 LINE IN VIDEO jack (phono type)**
Receives video signals from your TV or second VTR.
- 17 LINE OUT VIDEO jack (phono type)**
Sends video signals to your TV or second VTR.
- 18 AERIAL IN/OUT connectors**
Connect IN to the aerial and OUT to the TV for playback.
- 19 DX/LOCAL switch**
Normally set this to DX, but if the TV signal is very strong, set it to LOCAL.
- 20 RF CHANNEL screw**
Adjust with the supplied screwdriver for playback on the TV.
- 21 AC INPUT socket**
Connect the supplied AC power cord.

(A-4)



Labeling the parts

(A-4)

22 MONITOR OUT EURO-AV connector (21-pin)
Sends audio-video signals to your TV or second VTR.

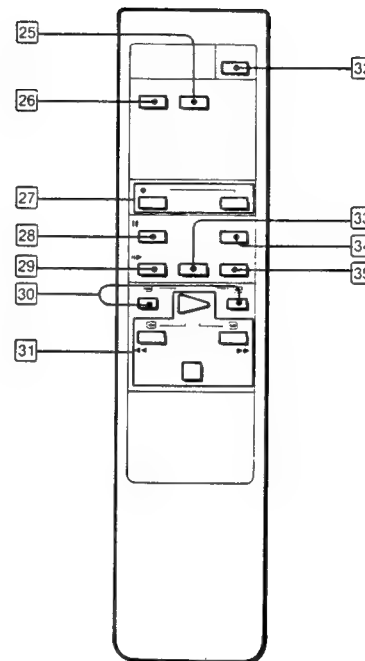
23 CONTROL L connector (5-pin DIN)
Connect to CONTROL L connectors of other Sony products.

24 LANC M/S switch
Set to either M or S. M is used when you are remotely controlling other Sony products by this VTR via the CONTROL L connector. S is used when you are remotely controlling this VTR by another Sony product via the CONTROL L connector.

About LANC

LANC stands for Local Application Control Bus System. The LANC connector is used for controlling the tape transport of video equipment and peripherals connected to it. This connector has the same function as the connectors indicated as CONTROL L or REMOTE.

(A-5)



Labeling the parts

On the Remote Commander

(A-5)

25 GO TO ZERO button
Press to advance or rewind the tape to the "0H00M00S" point.

26 COUNTER RESET button
Press to reset the tape counter to "0H00M00S."

27 REC buttons
Press the two buttons simultaneously to start recording.

28 PAUSE button
Press to stop the tape for a moment.

29 FRAME button
Press during playback pause to see the picture frame-by-frame.

30 SEARCH buttons
Press to see pictures in high-speed without pressing either button continuously.

31 Tape transport buttons (PLAY, REW, FF, STOP)
Playbacks, rewinds, fast-forwards, and stops tapes.

32 Power switch
Press to turn the VTR on or off.

33 1/10 button
Press during playback for slow-motion playback (1/10 the usual speed).

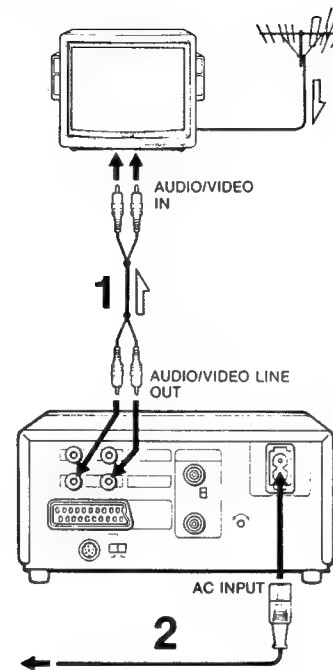
34 2 button
Press during playback for fast-motion playback (twice the usual speed).

35 1/5 button
Press during playback for slow-motion playback (1/5 the usual speed).

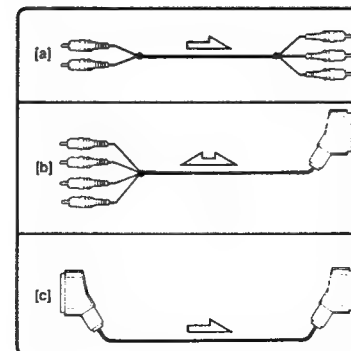
Installation

There are three steps involved in installing this VTR. First, you need to check whether your TV has video or audio inputs. (To do this, look under specifications in the manual which came with your TV.) Second, connect the VTR to the TV. Third, insert batteries into the Remote Commander. For your safety, turn the TV off before you begin these tasks.

(B-1)



(B-2)



How to connect this VTR to a TV with audio-video inputs

(B-1)

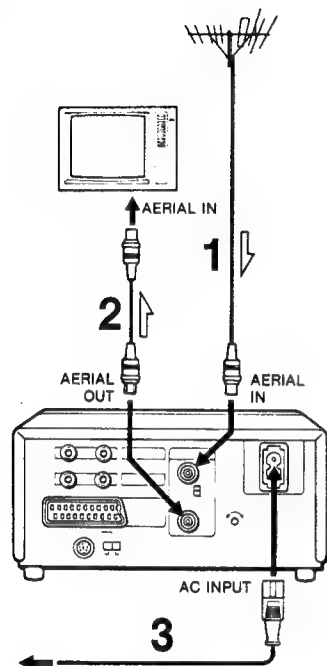
- 1** Plug the supplied A-V cable into the TV and the VTR.
 - The yellow plugs should be plugged in VIDEO IN/OUT jacks.
 - The grey/black plugs should be plugged in AUDIO IN/OUT jacks.
- 2** Plug the supplied AC power cord into the VTR and an electric outlet.

Optional cables (B-2)

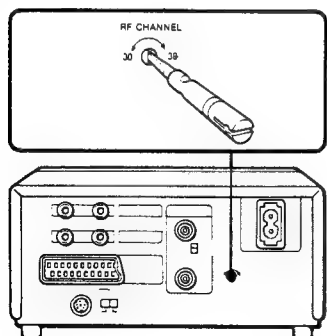
Depending on the type of TV you own you may have to use one of the following cables:

- [a] If you have a TV with stereo-type audio inputs use a VMC-910MSP/920MSP cable.
- [b] If you have a TV with a 21-pin connector use a VMC-2104M cable. (Unlike the other cables, you can leave this cable as is for both recording and playback).
- [c] If you have a TV with a 21-pin connector use a VMC-2121CE cable. (Installing this cable is simple, however, you will only be able to use it for playback).

(C-1)



(C-2)



How to connect this VTR to a TV without video and audio inputs

Making connections

(C-1)

- 1 Unplug the aerial's lead from the TV and plug it into the AERIAL IN on the VTR.
- 2 Plug the supplied coaxial cable into the TV and the AERIAL OUT on the VTR.
- 3 Plug the supplied AC power cord into the AC INPUT socket and in an electric outlet.

Adjusting the RF channel

- 1 Turn the TV on and select an empty programme position.
- 2 Turn the VTR on and playback a pre-recorded tape. (See page 18.)
- 3 Adjust the TV so the tape that is played back appears clearly on the screen.
- 4 If the playback picture is not free of disturbance, use the supplied screwdriver to adjust the RF CHANNEL to a channel which is not active in your area. (C-2)

Note

Now your TV is tuned to receive the VTR's playback picture. Whenever you playback a tape, select the programme position you chose in step 1. If you are not sure how to tune your TV, refer to the TV's instruction manual or consult your dealer.

How to insert batteries into the Remote Commander

(D)

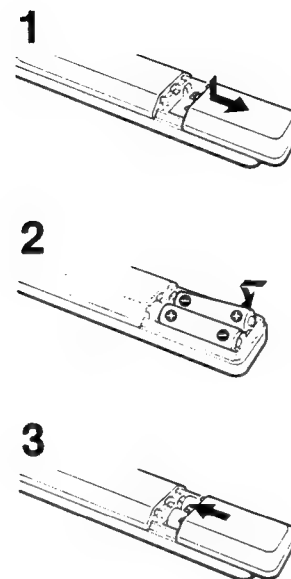
You need to insert two R6 (size AA) batteries into the Remote Commander before you can use it to operate the VTR.

- 1 Open the cover of the battery compartment.
- 2 Insert the batteries so the \oplus and the \ominus polarities match the polarities inside the battery compartment.
- 3 Close the cover of the battery compartment.

Notes on handling the batteries

- In normal operation, the batteries will last for approximately 6 months.
- If the Remote Commander will not be used for a long period of time, remove the batteries to avoid possible damage from battery leakage.

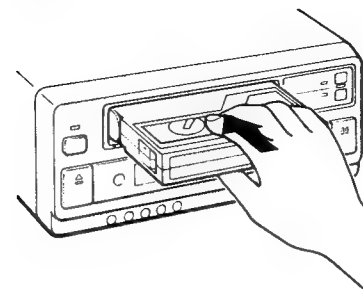
(D)



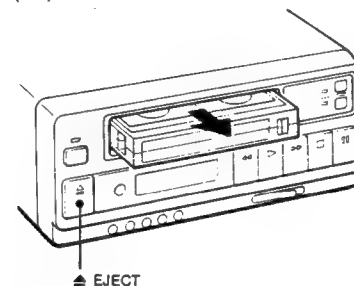
Basic Operation

The section shows you the basic steps involved in playing back a tape. Read through this section to learn how to insert a tape, play back a tape, and play back a tape in various modes such as slow-motion. Note that to play back tapes you must first set the TV/VIDEO selector to VIDEO if your TV has audio-video inputs. If your TV does not have audio-video inputs turn the TV on and select the programme position for the VTR.

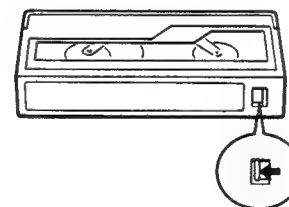
(E-1)



(E-2)



(E-3)




How to insert/eject tapes

To insert a tape: (E-1)

Insert a 8 mm tape in the cassette compartment with the window facing upwards. If the AC power cord is plugged in, the power will automatically turn on. Do not insert anything but 8 mm-format tapes in the cassette compartment.

To eject a tape: (E-2)

Press  to eject the tape. If the AC power cord is plugged in, the tape can be ejected even if the VTR is in standby.

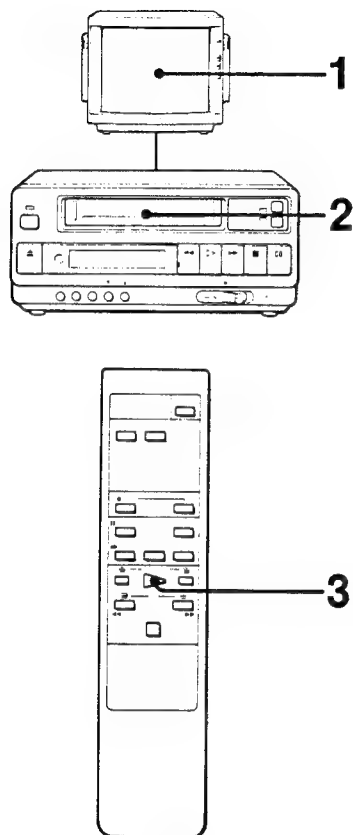
To preserve recordings: (E-3)

When a new recording is made on a tape, the contents of the tape will automatically be erased. To avoid recording over a tape, slide the tab out to cover the opening. Slide the tab in to re-record on a tape.

General advice for handling tapes:

- To prevent dust from entering the tape, store tapes in their cases.
- To avoid uneven winding, store tapes in an upright position.
- To avoid uneven winding, rewind tapes at high speeds twice a year if they have not been used for a long time.
- To avoid erasing recordings, keep tapes away from electronic equipment with strong magnetic fields such as speakers.
- To prevent tapes from becoming unusable, do not insert anything in the small holes on the side of the tape and keep them away from hot or humid places.

(F)



How to play back tapes

(F)

1 On a TV with audio-video inputs:
Turn the TV on and set the TV/VIDEO selector to VIDEO.
On a TV without audio-video inputs:
Turn the TV on and select the programme position for the VTR.

2 Insert a video tape in the cassette compartment.
The power will turn on and the cassette indicator lights up in the display window.

3 Press the ▷ PLAY button.
The ▷ lights up on the VTR and the playback picture will appear on the screen.

To stop playback, press the ■ STOP button.

To rewind the tape, press the ◀◀ REW button.

To advance the tape in high speed, press the ▶▶ FF button.

To remove the tape from the cassette compartment, press the ▲ EJECT button.

Auto rewind function

When the tape reaches its end, it will automatically be rewound and stop. The tape will not be rewound, however, after the picture search or the fast-forward modes.

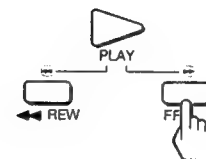
Auto play function

The tape can be set to play back automatically after the tape has finished rewinding. To do this, press the ▷ PLAY button while holding the REW button on the Remote Commander.

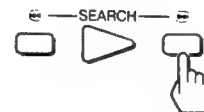
(G-1)



(G-2)



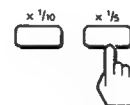
(G-3)



(G-4)



(G-5)



How to play back tapes in various modes

You can play back tapes in modes such as fast-forward, slow-motion, and frame-by-frame. Use the buttons on the VTR or the Remote Commander to play back tapes in these modes.

For most of these modes, you can return to normal playback by pressing ▷ PLAY.

To pause the playback for a still picture: (G-1)
Press || PAUSE during playback. The picture will be still on the screen.

If the still mode is left on for more than 7 minutes the unit will automatically return to playback.

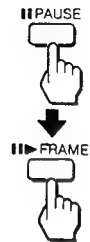
To search for a particular scene: (G-2)
Press ◀◀ REW or ▶▶ FF continuously during playback or still mode. The picture will be in high-speed reverse/forward playback without sound. When you find the scene you want, stop pressing the button and you will return to the playback mode.

To search for a particular scene without having to hold down the button: (G-3)
Press SEARCH (S) on the Remote Commander during playback or still mode. The picture will be in high-speed reverse/forward playback without sound.

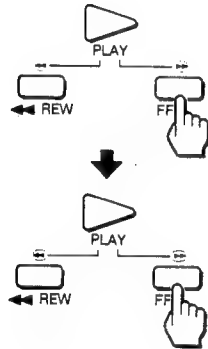
To fast-forward at twice the normal speed: (G-4)
Press x2 on the Remote Commander during playback or the still mode. The picture will speed up but you will be able to hear the sound.

For slow-motion playback: (G-5)
Press 1/10 or 1/5 on the Remote Commander during playback or the still mode. The sound will be muted in these modes.

(G-6)



(G-7)



How to play back tapes in various modes

To view the picture frame-by-frame: (G-6)

Press **||** during playback, then press **||▶** FRAME several times. The picture will advance frame-by-frame every time you press a button. The sound will be muted.

To view the picture momentarily during either fast-forward or rewind: (G-7)

Press **▶▶** FF during fast-forward and press **◀◀** REW during rewind. You will be able to see a picture when you are pressing the button. Release the button to return to the previous mode.

Notes

- A few streaks may appear in the picture and the sound will be muted in the picture search modes. The streaks may be wider for tapes which were recorded in the SP mode than tapes which were recorded in the LP mode. Depending on the TV you are using, the picture may shake vertically, become black and white, or become dark.
- If the picture shakes vertically during $\times 2$ playback or the still mode, adjust the picture with SLOW/STILL ADJUST ∇/\blacktriangle on the front panel of the VTR.
- If there are streaks in the picture during the slow-motion playback or still modes, adjust the picture with SLOW/STILL ADJUST ∇/\blacktriangle on the front panel of the VTR. If you are in the still mode, switch to the slow-motion playback mode before you use these buttons.

Advanced Operation

This section shows you how to do complex tasks such as recording TV programmes, using the tape counter, and editing tapes. You must change or add connections between the TV and this VTR to record or to edit tapes. You can use any cable listed in the text of each section to make the appropriate connections.

How to record TV programmes

The main purpose of this VTR is to playback tapes. You can, however, record TV programmes if you have a TV with audio-video outputs. To record programmes you must first change or add new connections between the TV and the VTR.

Making connections

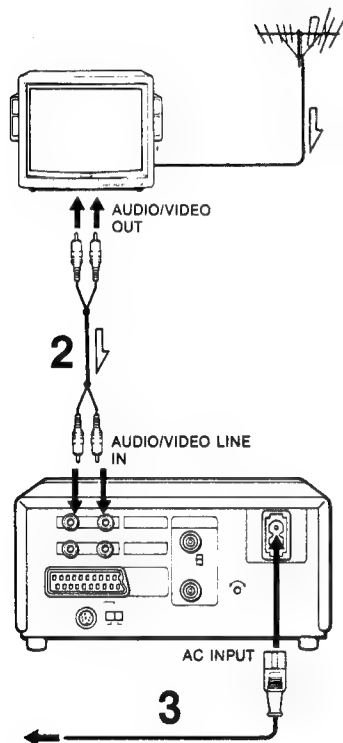
(H-1)

- 1 Unplug the A-V cord from the AUDIO/VIDEO IN jacks in the rear of the TV and from the LINE OUT AUDIO/VIDEO jacks in the rear of the VTR.
- 2 Plug the A-V cord back into the TV and the VTR.
 - The yellow plugs should be plugged in VIDEO IN/OUT jacks.
 - The grey/black plugs should be plugged in AUDIO IN/OUT jacks.
- 3 Plug the supplied AC power cord into the VTR and an electric outlet.

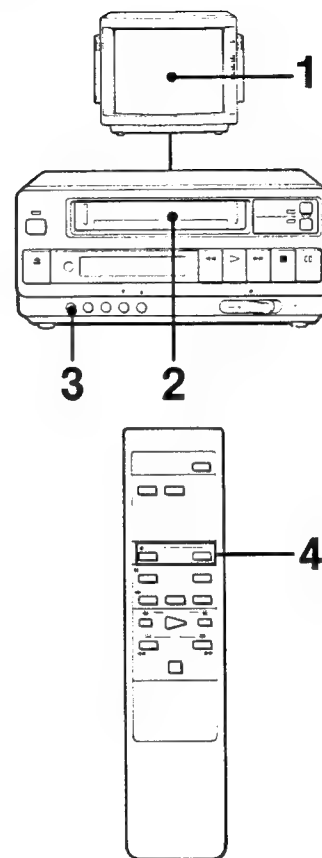
Notes

- If the TV has L/R stereo outputs, use a VMC-910MSP/920MSP cable. (See page 13.)
- If you have a TV with a 21-pin connector, use a VMC-2104M cable. (See page 13.)

(H-1)



(H-2)



How to record TV programs

Recording TV programmes

(H-2)

- 1 Turn the TV on and choose the program you want to record.
- 2 Insert a tape into the VTR.
- 3 Select the tape speed (SP/LP) at which you want to record.
- 4 Press the two ● REC buttons simultaneously to start recording.

Note

You have to keep the TV on to record the TV program.

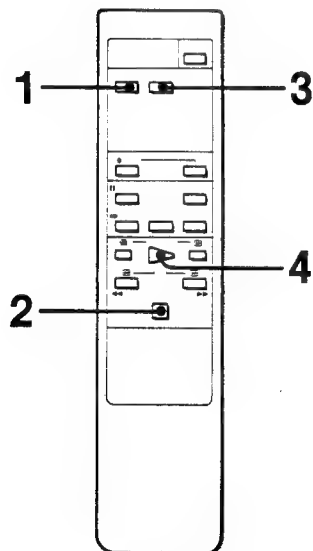
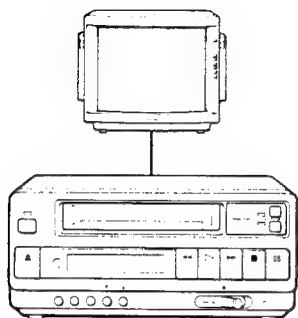
To stop recording for a moment

Press **|| PAUSE**. To start recording again, press **|| PAUSE** again. If the recording pause mode is left on for more than 7 minutes, the unit will automatically return to recording.

Auto rewind function

The tape will automatically be rewound when it reaches its end.

(I)



How to use the tape counter

(II)

The tape counter can be useful for playback and recording because you can mark the exact spot that you want to see on the tape.

- 1 Press COUNTER RESET during playback/recording to mark the spot that you want to return to.
"0H00M00S" will appear on the display window briefly.
- 2 Press ■ STOP at the end of playback/recording.
- 3 Press GO TO ZERO.
The VTR will start searching for the zero counter point. (If the tape counter does not display more than 1 minute, however, the VTR will not rewind).
- 4 Press ▷ PLAY during the search mode.
Playback starts from the zero counter point.

Accuracy of the tape counter

Because the tape counter is not a clock, there is a slight difference between the time counter display and the actual recording/playback time. This difference may be noticeable when you have switched to the recording mode.

How to use editing features

You can easily edit your homemade tapes if you have a camcorder or a second VTR as well as the appropriate signal-flow cables. The three ways you can edit tapes are: copying a whole tape, assembling scenes on a blank tape, and inserting scenes into a pre-recorded tape. You can use a Video Editing Controller to operate a player and recorder remotely.

Notes

- Even when using the EDIT mode during editing, the quality of the edited tape will have a certain extent of degradation in picture and sound. Please avoid using the edited tape for multiple generations of editing.
- It is illegal to copy TV programmes, films, video tapes, and other materials which have been copyrighted.

Copying a whole tape

You can duplicate the contents of a tape using either a camcorder or a second VTR. This is convenient when you want a backup copy of a tape or make a copy for a friend. The two examples in this manual show you how to copy a whole tape in:

- a camcorder onto a blank tape in this VTR (See page 27.)
- this VTR onto a blank tape in a second VTR (See page 28.)

Assemble editing

You can assemble scenes from a variety of tapes onto a single blank tape if you have a camcorder or a second VTR. This is useful if you are making a tape, say of your child, from several tapes. The three examples in this manual show you how to assemble edit scenes from tapes in:

- a camcorder onto a blank tape in this VTR (See page 29.)
- this VTR onto a blank tape in a second Sony VTR with a control L connector (See page 31.)
- this VTR onto a blank tape in a second VTR without a control L connector (See page 33.)

How to use editing features

Insert editing

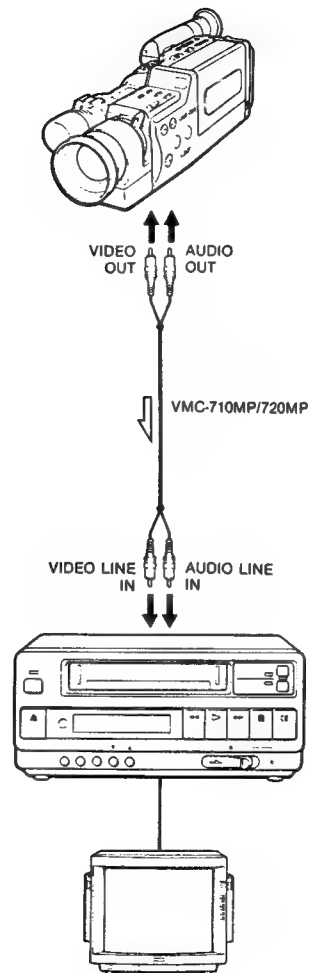
You can insert scenes from tapes onto a pre-recorded tape if you use a second VTR. Again, you will need a camcorder or a second VTR to insert edit. The example in this manual shows you how to insert scenes from tapes in:

- a camcorder/a second VTR onto a pre-recorded tape in this VTR (See page 35.)

Editing with a Video Editing Controller

You can use a Sony Video Editing Controller such as the RM-E100V/RM-E300 to simplify the steps involved in editing. Please refer to the Video Editing Controller manual for detailed description of the connections and the editing procedures.

(J-1)



How to copy a whole tape using a camcorder

(J-1)

To duplicate a tape you must first connect a camcorder to this VTR using an A-V cable. To do this, you can use the supplied cable, or purchase:

- a VMC-710MP/720MP (same type as the supplied cable)
- a VMC-910MSP/920MSP (for camcorders with stereo sound)

The illustration is an example of the connections you need to make when you want to copy a tape from the camcorder to a blank tape in the VTR. After you make these connections, follow these steps:

Preparing the camcorder:

- 1 Turn the camcorder on and insert the tape you want to copy.
- 2 Turn the EDIT mode on (if the camcorder has this function).
- 3 Find the point from where you want to start playback and enter the playback pause mode.

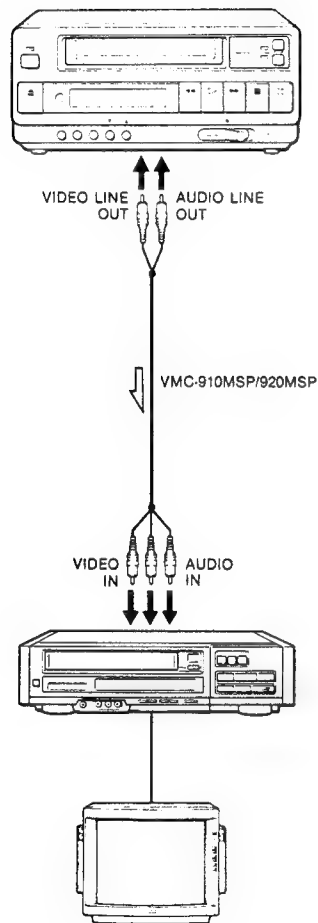
Preparing this VTR:

- 4 Insert a blank tape.
- 5 Select the tape speed (SP/LP).
- 6 Press the EDIT button.
- 7 Find the point from where you want to start recording and enter the recording pause mode.

Recording from the camcorder to the VTR:

- 8 Press **II PAUSE** on both the camcorder and the VTR simultaneously. The copying will begin.
- 9 Press **■ STOP** on both the camcorder and the VTR to stop copying.

(J-2)



How to copy a whole tape using a second VTR

(J-2)

To duplicate a tape you must first connect a second VTR to this VTR using an A-V cable. To do this, you can use the supplied cable, or purchase:

- a VMC-710MP/720MP (same type as the supplied cable)
- a VMC-910MSP/920MSP (for VTRs with stereo sound)

The illustration is an example of the connections you need to make when you want to copy a tape from this VTR to a blank tape in the second VTR. After you make these connections, follow these steps:

Preparing the VTR:

- 1 Insert the tape you want to copy.
- 2 Press the EDIT button.
- 3 Find the point from where you want to start playback and enter the playback pause mode.

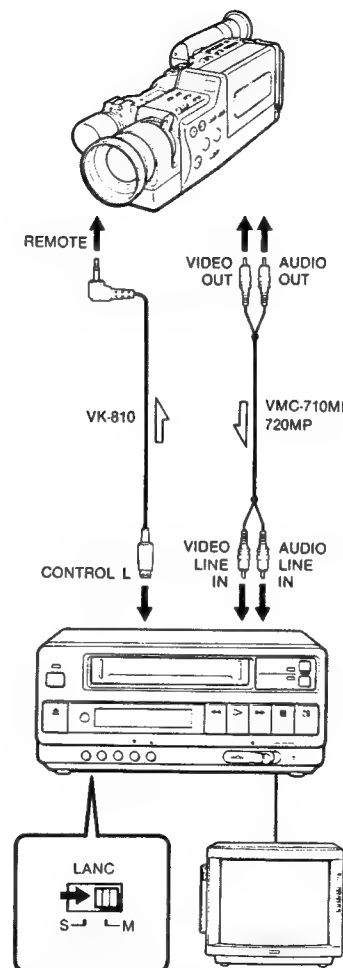
Preparing the second VTR:

- 4 Insert a blank tape.
- 5 Turn the EDIT mode on (if it has this function).
- 6 Find the point from where you want to start recording on the tape and enter the recording pause mode.

Copying from this VTR to the second VTR:

- 7 Press **II PAUSE** on both VTRs simultaneously. The copying will begin.
- 8 Press **■ STOP** on both VTRs to stop copying.

(K-1)



How to assemble edit using a Sony camcorder

(K-1)

To gather scenes from various tapes onto a blank tape, you must first connect a camcorder to this VTR. To do this, use an A-V cable and a control cable such as:

- a VMC-710MP/720MP (same type as the supplied cable)
- a VMC-910MSP/920MSP (for camcorders with stereo sound)
- a VK-810 (control cable)

The illustration is an example of the connections you need to make when you want to edit scenes from tapes you put in the camcorder to a blank tape in this VTR. After you make these connections, follow these steps:

Preparing the camcorder:

- 1 Turn the power on and insert the tape you want to edit.
- 2 Turn the EDIT mode on (if the camcorder has this function).
- 3 Find the point from where you want to start playback and enter the playback pause mode.

Preparing this VTR:

- 4 Insert a tape.
- 5 Set the LANC M/S switch in the rear to M.
- 6 Select the tape speed (SP/LP).
- 7 Press the EDIT button.
- 8 Find the point from where you want to start recording and enter the recording pause mode.

How to assemble edit using a Sony camcorder

Editing from the camcorder to the VTR:

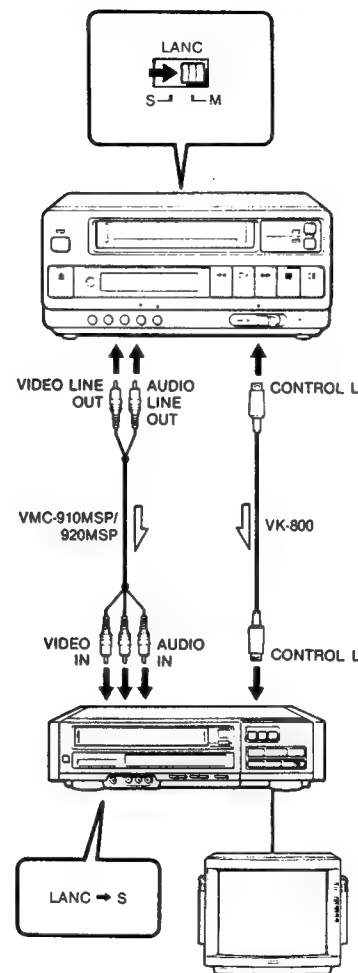
9 Press SYNCHRO EDIT on the VTR.
The editing will begin.

10 Press SYNCHRO EDIT when you want to stop editing.

To edit the next scene:
Repeat steps 3, 9, and 10.

To finish assemble editing:
Press ■ STOP on both the camcorder and this VTR.

(K-2)



How to assemble edit using a second Sony VTR

(K-2)

To gather scenes from various tapes onto a blank tape, you must first connect a second Sony VTR with control L connector to this VTR. To do this, use an A-V cable and a control cable such as:

- a VMC-710MP/720MP (same type as the supplied cable)
- a VMC-910MSP/920MSP (for VTRs with stereo sound)
- a VK-800 (control cable)

The illustration is an example of the connections you need to make when you want to edit scenes from tapes you put in this VTR to a blank tape the second VTR. After you make these connections, follow these steps:

Preparing this VTR:

- 1 Turn the power on and insert the tape you want to edit.
- 2 Set the LANC M/S switch in the rear to M.
- 3 Press the EDIT button.
- 4 Find the point from where you want to start playback and enter the playback pause mode.

Preparing the second VTR:

- 5 Insert a tape.
- 6 Set the LANC M/S switch to S.
- 7 Turn the EDIT mode on (if the VTR has this function).
- 8 Find the point from where you want to start recording and enter the recording pause mode.

How to assemble edit using a second Sony VTR

Editing from this VTR to a second VTR:

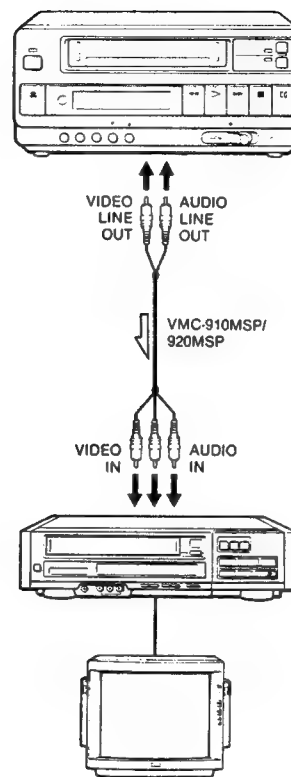
9 Press **SYNCHRO EDIT** on this VTR.
The editing will start.

10 Press **SYNCHRO EDIT** to stop editing.

To edit the next scene:
Repeat steps 4, 8, and 9.

To finish assemble editing:
Press **■ STOP** on both VTRs.

(K-3)



How to assemble edit using a second VTR

(K-3)

To gather scenes from various tapes onto a blank tape, you must first connect a second VTR not equipped with a control L connector to this VTR. To do this, use an A-V cable such as:

- a VMC-710MP/720MP (same type as the supplied cable)
- a VMC-910MSP/920MSP (for VTRs with stereo sound)

The illustration is an example of the connections you need to make when you want to edit scenes from tapes you put in this VTR to a blank tape in the second VTR. After you make these connections, follow these steps:

Preparing this VTR:

- 1** Turn the power on and insert the tape you want to edit.
- 2** Press the **EDIT** button.
- 3** Find the point from where you want to start playback and enter the playback pause mode.

Preparing the second VTR:

- 4** Insert a tape.
- 5** Turn the **EDIT** mode on (if the VTR has this function).
- 6** Find the point from where you want to start recording and enter the recording pause mode.

How to assemble edit using a second VTR

Editing from this VTR to a second VTR:

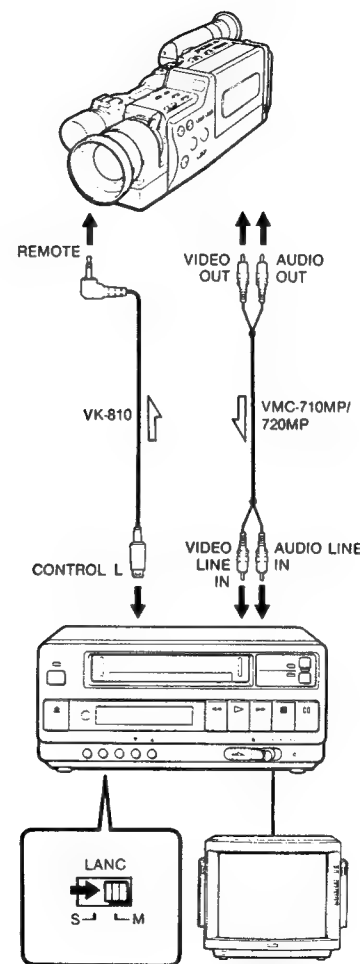
7 Press **II PAUSE** on both VTRs simultaneously.
The editing will start.

8 Press **II PAUSE** on the second VTR to stop editing.

To edit the next scene:
Repeat steps 3, 7, and 8.

To finish assemble editing:
Press **■ STOP** on both VTRs.

(L)



How to insert edit using a Sony camcorder/VTR

(L)

To insert scenes from various tapes onto a pre-recorded tape, you must first connect a Sony camcorder or second VTR to this VTR. To do this, use an A-V cable and a control cable such as:

- a VMC-710MP/720MP (same type as the supplied cable)
- a VMC-910MSP/920MSP (for VTRs with stereo sound)
- a VK-810 (control cable for camcorders)
- a VK-800 (control cable for VTRs)

The illustration is an example of the connections you need to make when you want to insert scenes from tapes you put in the camcorder onto a pre-recorded tape in this VTR. After you make these connections, follow these steps:

Preparing the camcorder:

- 1 Insert the tape you want to edit.
- 2 Press the EDIT button (if the camcorder has this function).
- 3 Find the point from where you want to start playback and enter the playback pause mode.

Preparing this VTR:

- 4 Insert a pre-recorded tape.
- 5 Set the LANC M/S switch in the rear of the VTR to M.
- 6 Select the same tape speed (SP/LP) as the tape you want to edit.
- 7 Press the EDIT button.
- 8 Find the point from where you want to stop recording and enter the recording pause mode.
- 9 Press COUNTER RESET to display "0H00M00S."
- 10 Rewind the tape and enter the recording pause mode at the start of the edit.

How to insert edit using a Sony camcorder/VTR

Editing from the camcorder to this VTR:

11 Press SYNCHRO EDIT on the VTR.
The editing will start. When the tape counter on this VTR displays "0H00M00S," the camcorder enters the playback pause mode and this VTR enters the recording pause mode.

12 Press SYNCHRO EDIT or ■ STOP when you want to stop recording.

To insert the next scene:
Repeat steps 3, and 8 to 11.

To finish insert editing:
Press ■ STOP on both the camcorder and the VTR.

SECTION 3 DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

3-1. REMOVAL OF FRONT PANEL, CASE UPPER, PLATE BOTTOM

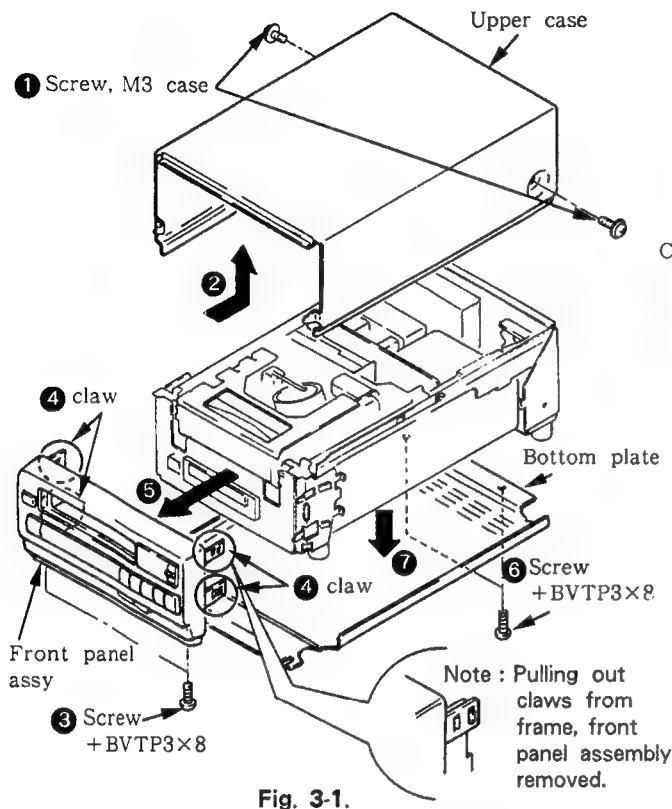


Fig. 3-1.

3-2. REMOVAL OF VI-101, IN-41, FR-38 BOARDS

- Return bottom of the set above.
- Separate connectors before VI-101, IN-41 boards remove.

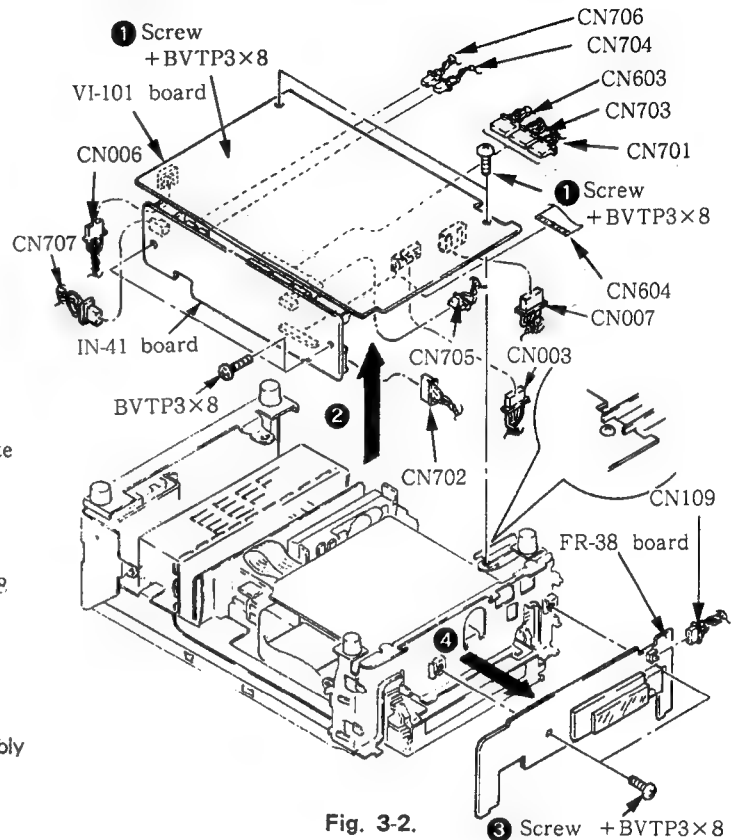


Fig. 3-2.

3.3. REMOVING BOARDS CONNECTED BY A BOARD-TO-BOARD CONNECTOR

Example : Removing the VI-101 board from the IN-41, AF-20 board

- 1) Flat the IN-41 board as shown in Fig. 3-3. ①.
- 2) As shown in Fig. 3-3. ②, pull out the IN-41 board from the VI-101 board.
- 3) Before removing the AF-20 board, turn PCB support ③.
- 4) Remove the AF-20 board from the VI-101 board ④.

Note : Pulling out the board forcefully may damage the connector or pattern. Therefore use care when removing the board.

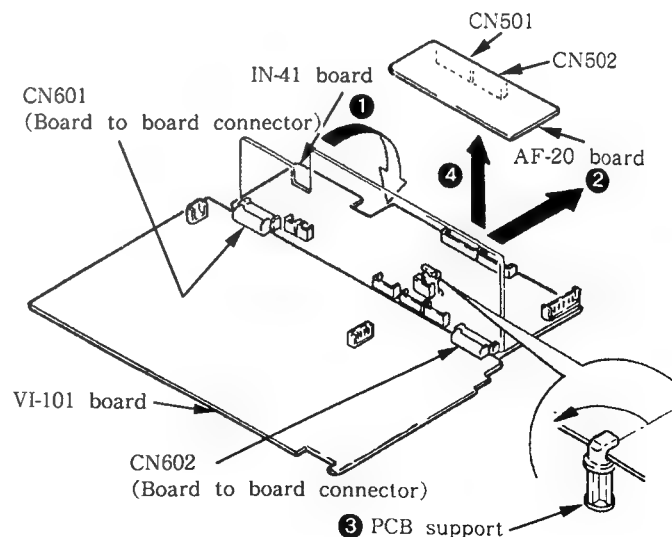


Fig. 3-3.

3.4. REMOVAL OF FC-43 BOARD

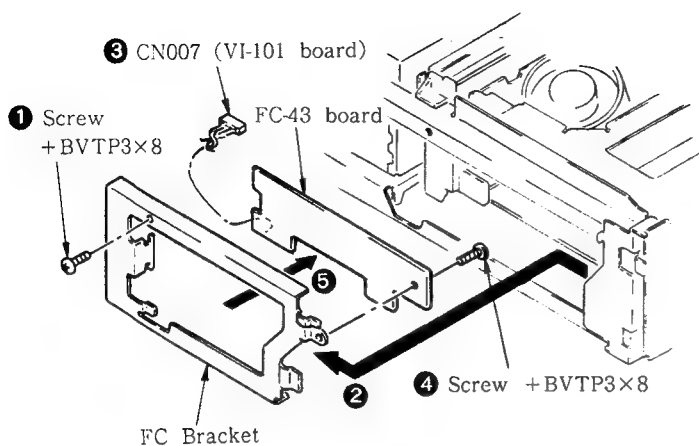


Fig. 3-4.

3.6. REMOVAL OF CC-23 BOARD

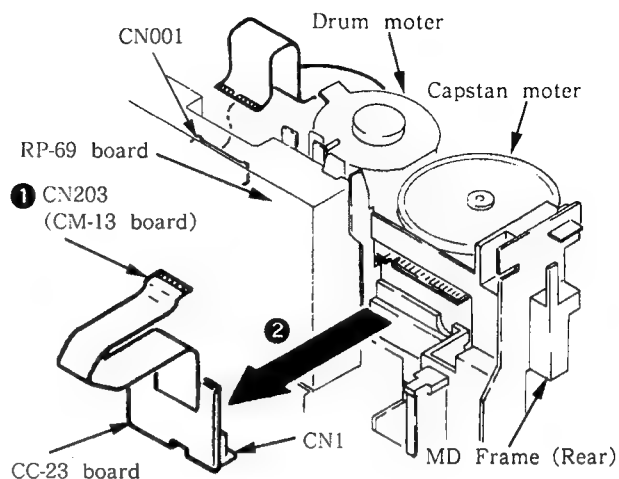


Fig. 3-6.

3.5. REMOVAL OF POWER BLOCK RS-32 BOARDS

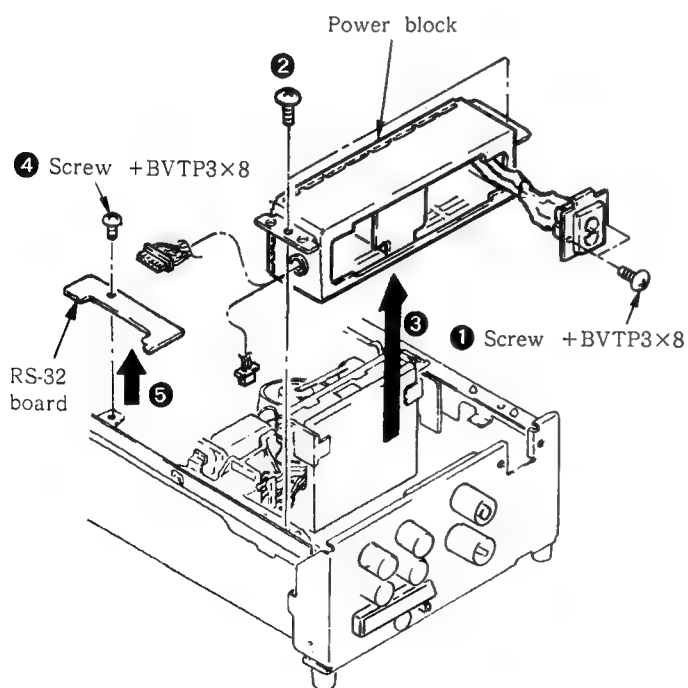


Fig. 3-5.

3.7. REMOVAL OF CM-13, UC-3, RP-69 BOARDS

- Remove bottom of the set.
- Separate connectors before CM-13, UC-3, RP-69 boards remove.

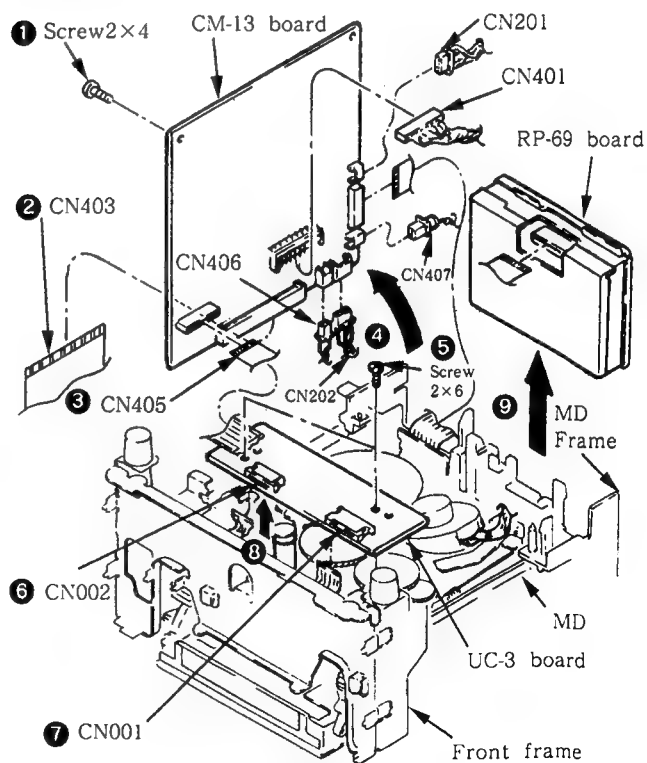


Fig. 3-7.

3-8. REMOVAL OF RP-69 BOARD, FLEXIBLE BOARD

- 1) Remove the screw in Fig. 3-8 A
- 2) Pull out two claws of MD frame in Fig. 3-8 B.
- 3) Move the slider C of CN001 on RP-69 board in the direction of the arrow D.
- 4) Remove FLEXIBLE boards.

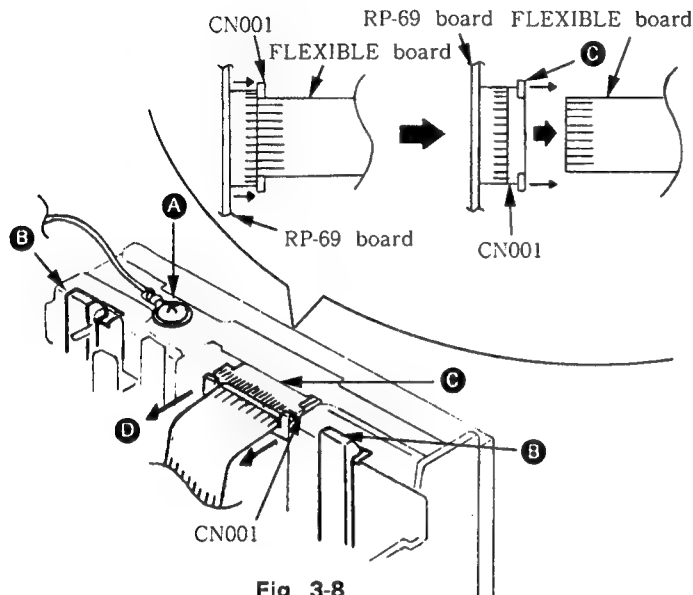


Fig. 3-8.

3-10. REMOVAL OF MD, CASSETTE COMPARTMENT BLOCK

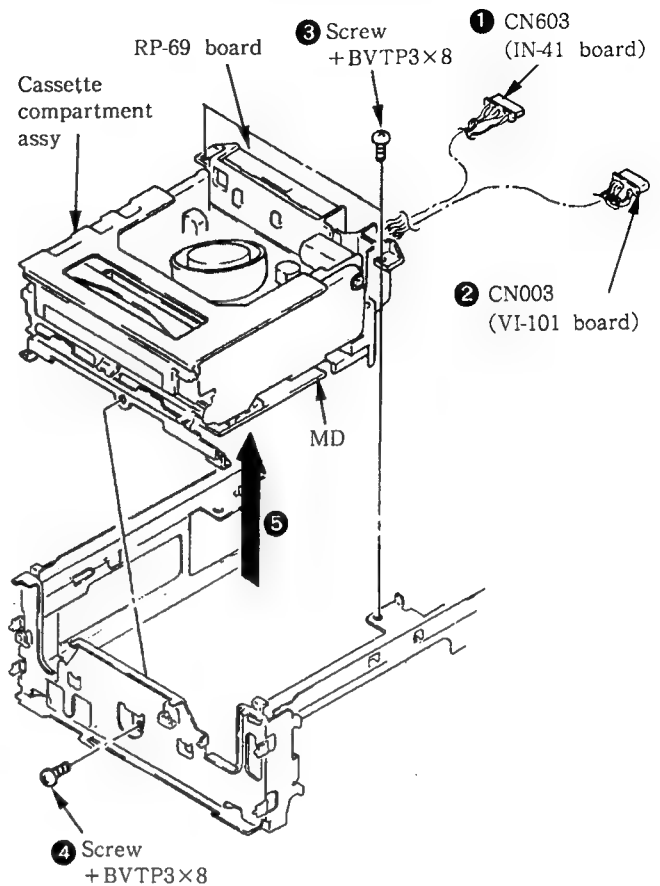


Fig. 3-10.

3-9. REMOVAL OF PI-24 BOARD AND RM-44 BOARD AND REAR FRAME, MODULATOR

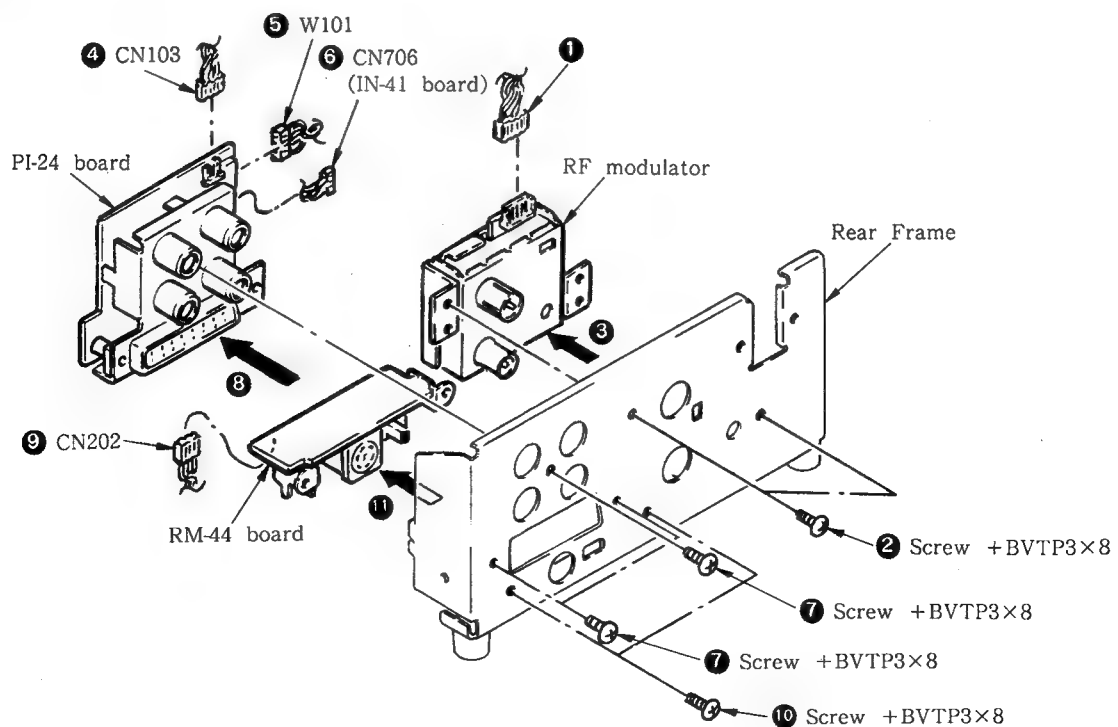


Fig. 3-9.

3-11. REMOVAL OF MD SECTION

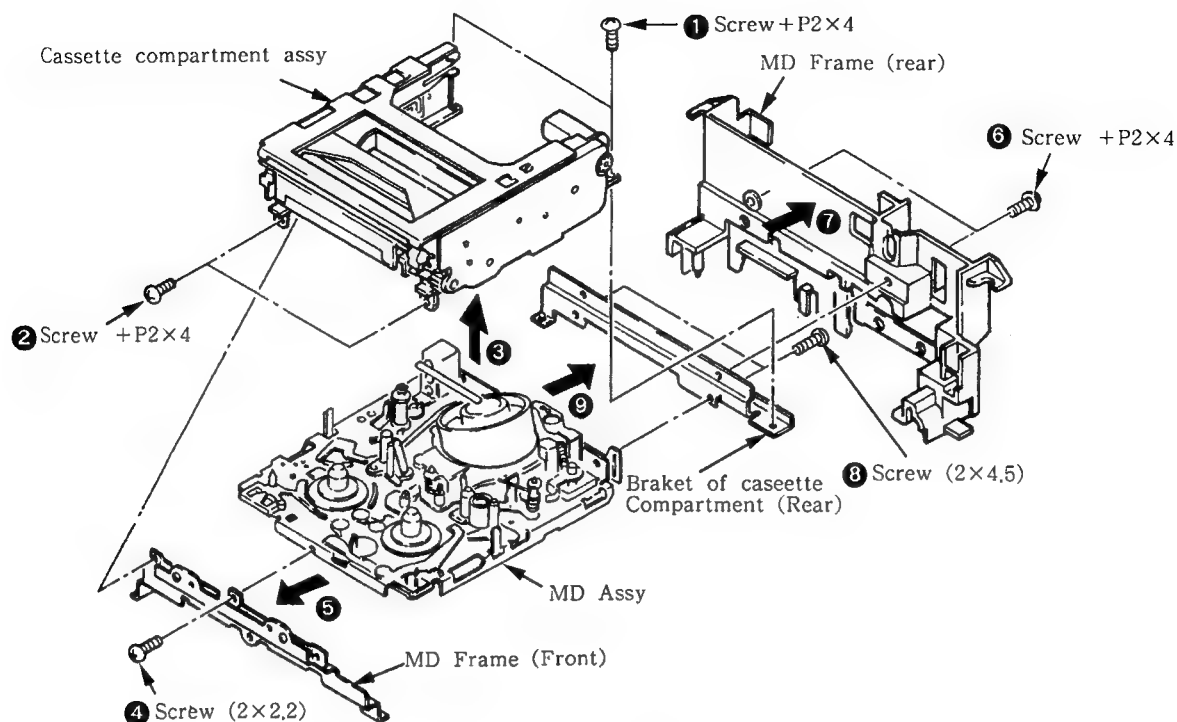


Fig. 3-11.

3-12. NOTES FOR CASSETTE COMPARTMENT ASSY INSTALLATION

1. After installing the cassette compartment ass'y onto the MD block ass'y, look from the front panel and check if the tab of the eject lever (MD block ass'y) is properly latched onto the rear of the knob of the lock slider (cassette compartment ass'y). See Fig. 3-12.
2. If the tab is latched on the reverse, use the tip of a screwdriver to lightly push the eject lever. Then install the cassette compartment ass'y.

Notes

1. When the MD block ass'y is not in the STOP position, the eject lever might not be able to move.
2. If the cassette compartment is not properly installed on the MD block ass'y (improper latching between the cassette compartment ass'y's lock slider and the MD block ass'y's eject lever) and the unit's AC plug is inserted into a power outlet, the cassette door and holder will operate repeatedly regardless of the ON/OFF setting of the power switch. The cassette will not be loaded even when it is inserted.

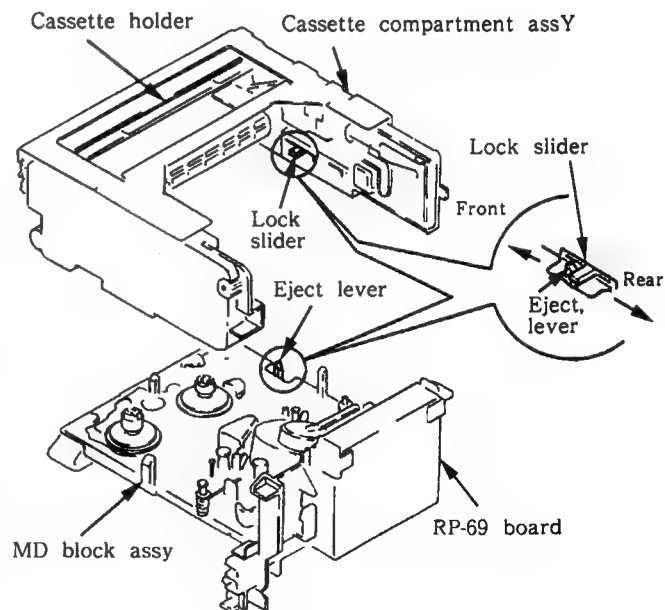
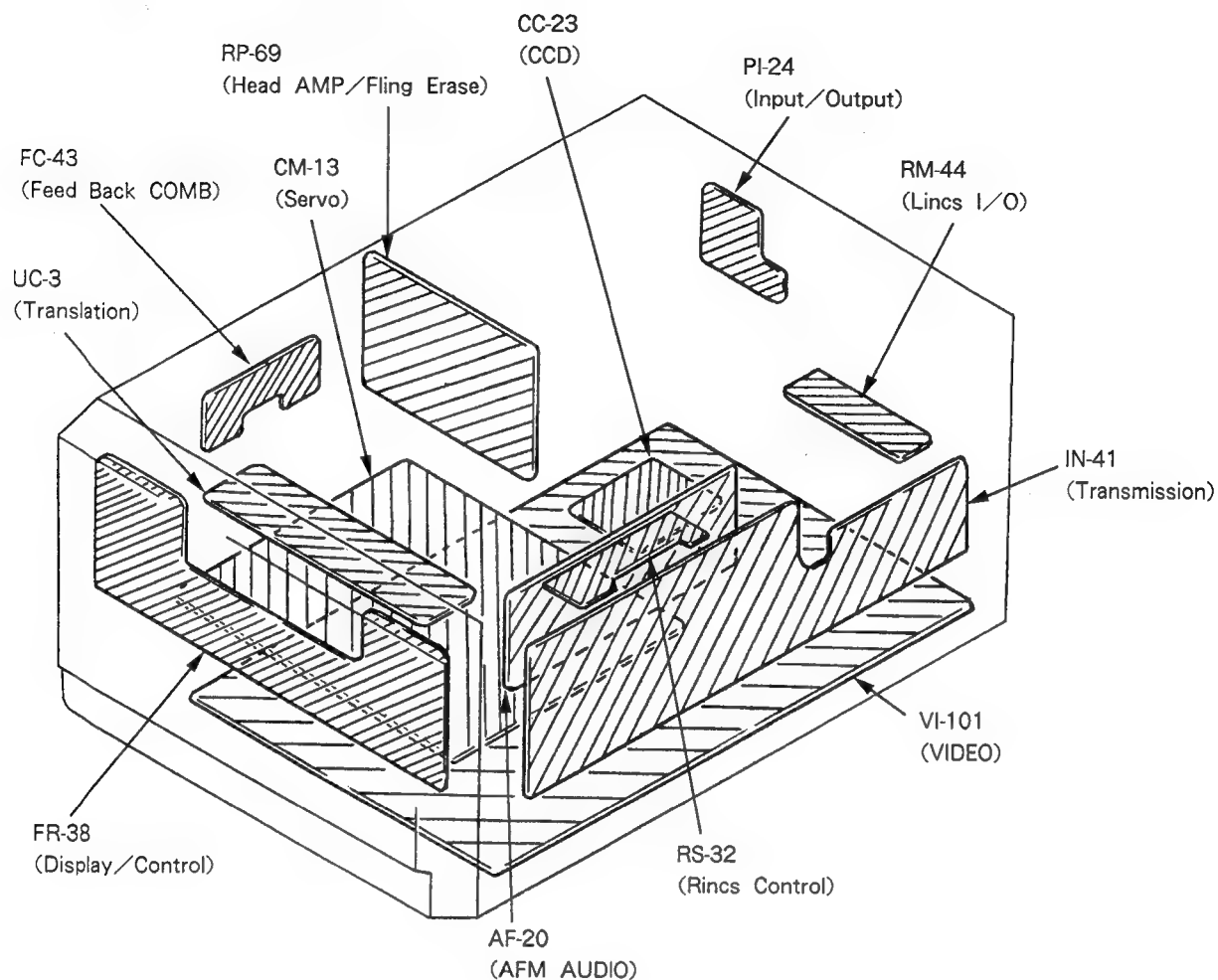


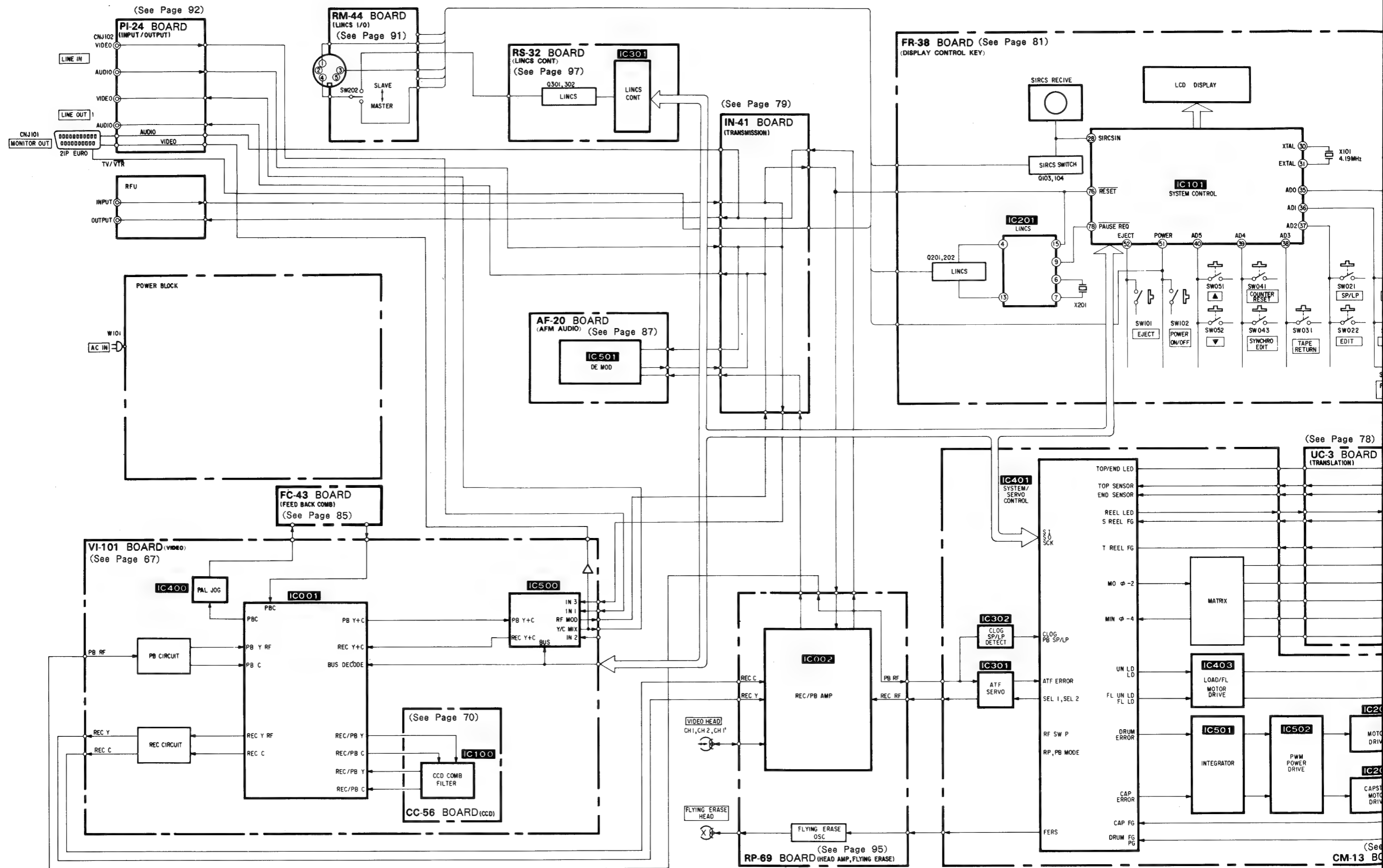
Fig. 3-12.

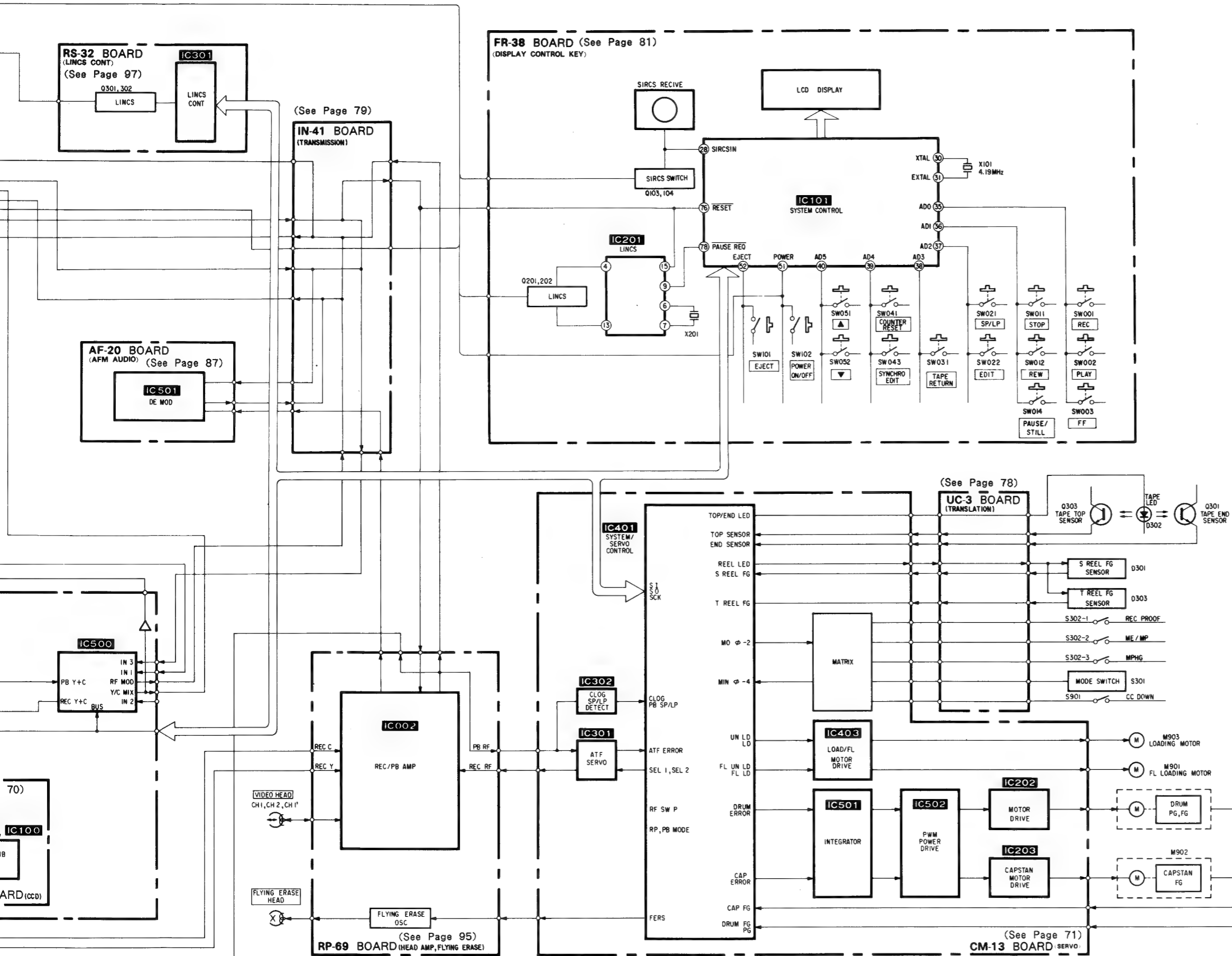
SECTION 4 DIAGRAMS

4-1. CIRCUIT BOARDS LOCATION

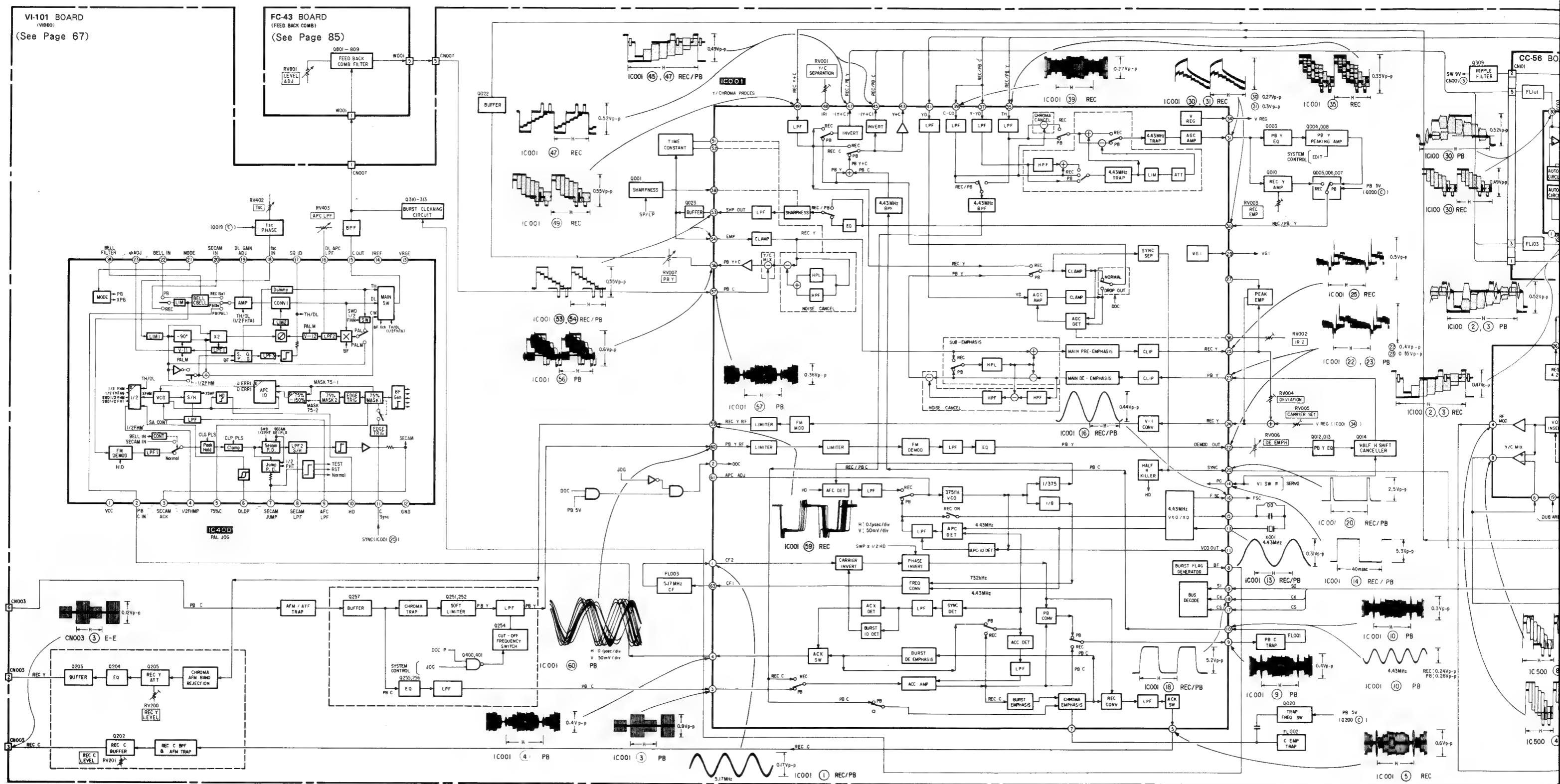


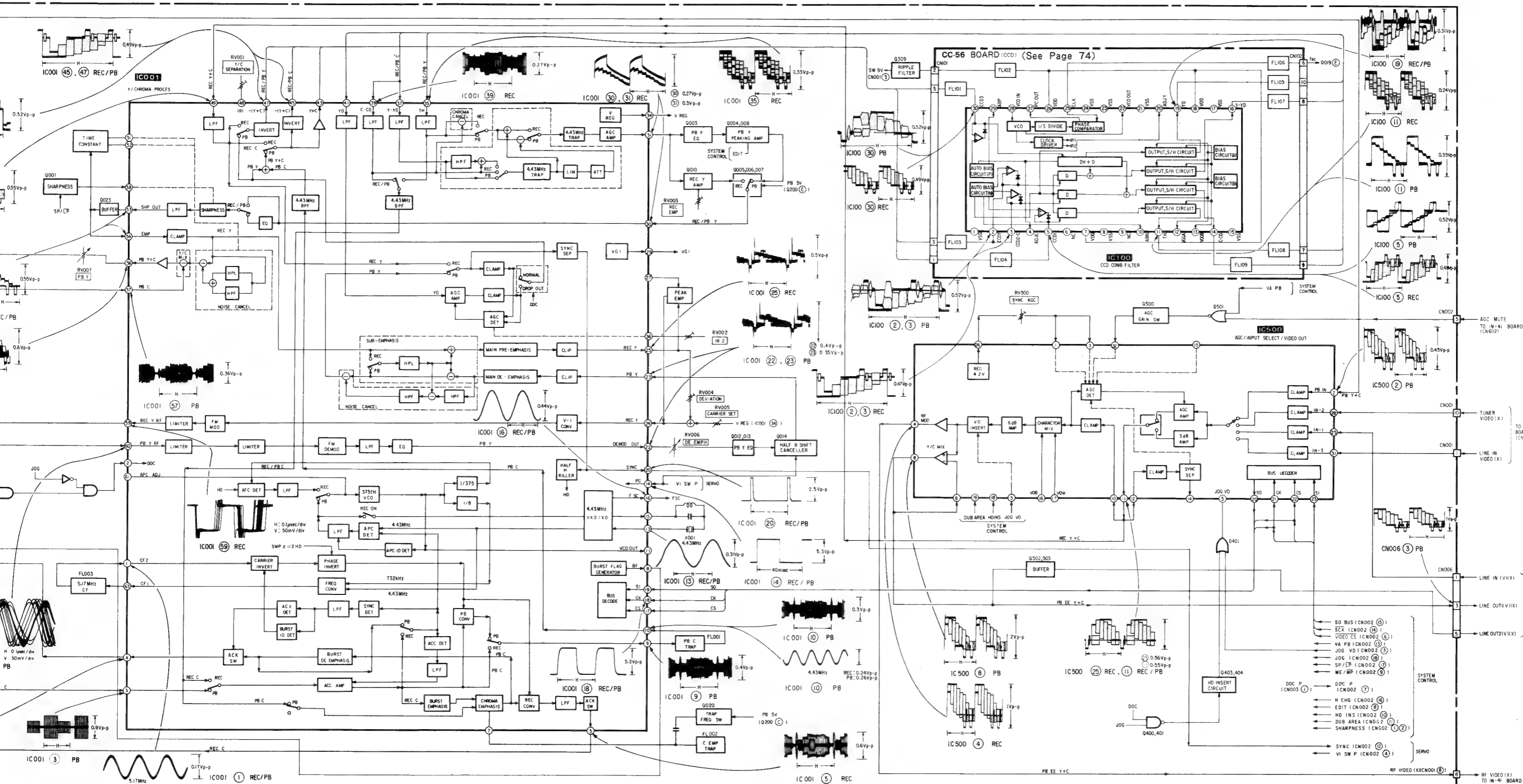
4-2. OVERALL BLOCK DIAGRAM



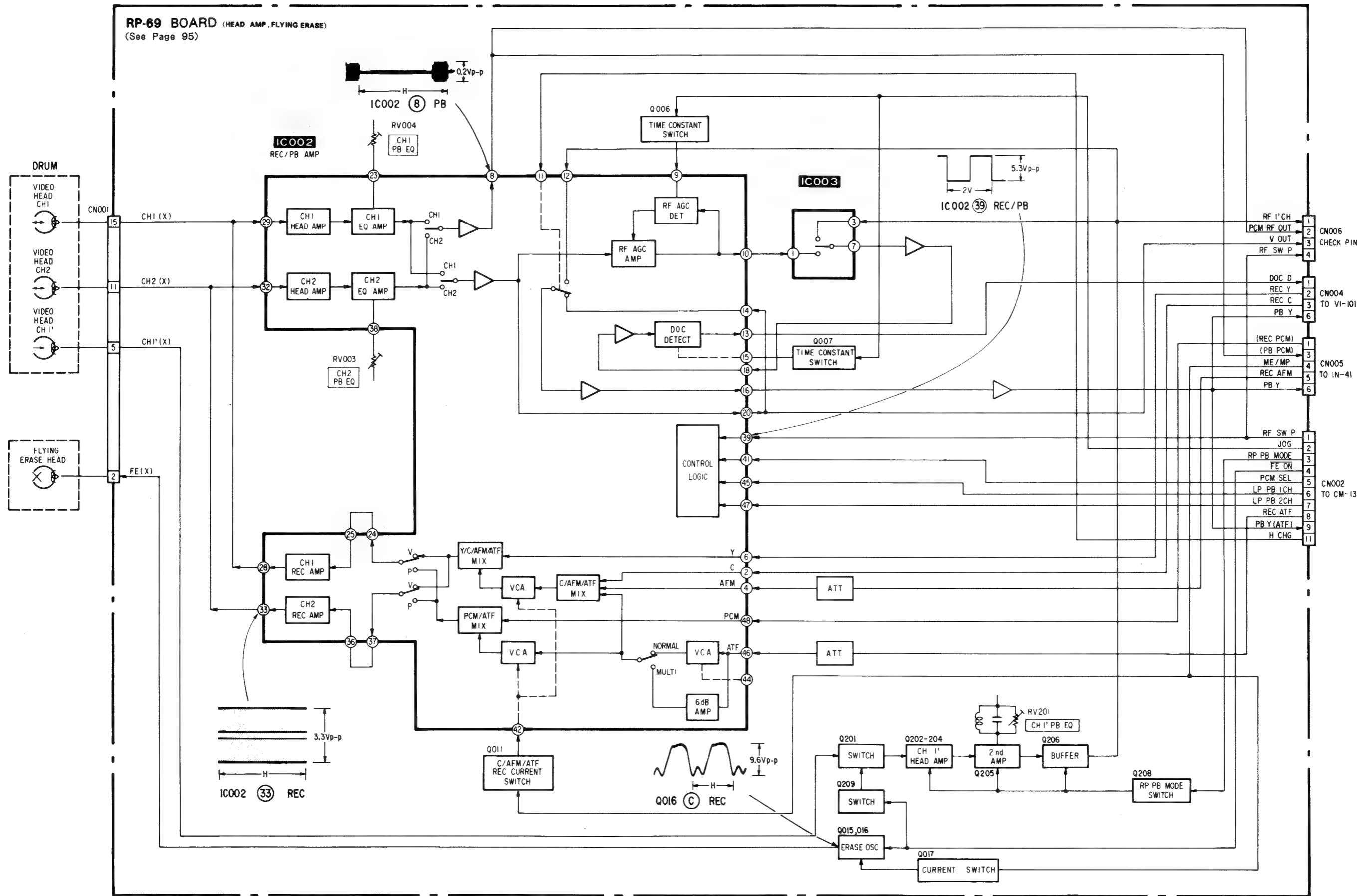


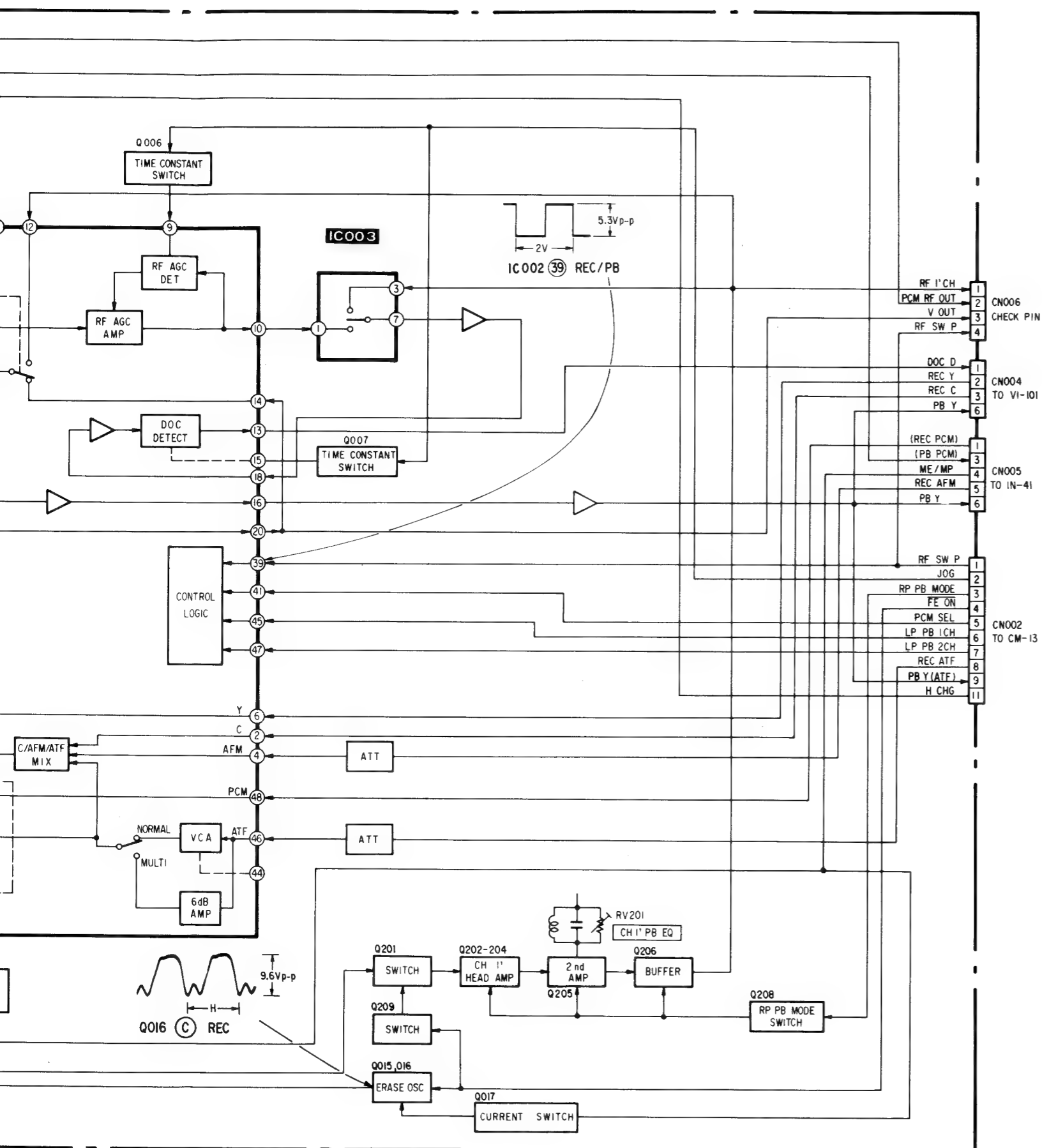
4-3. VIDEO BLOCK DIAGRAM



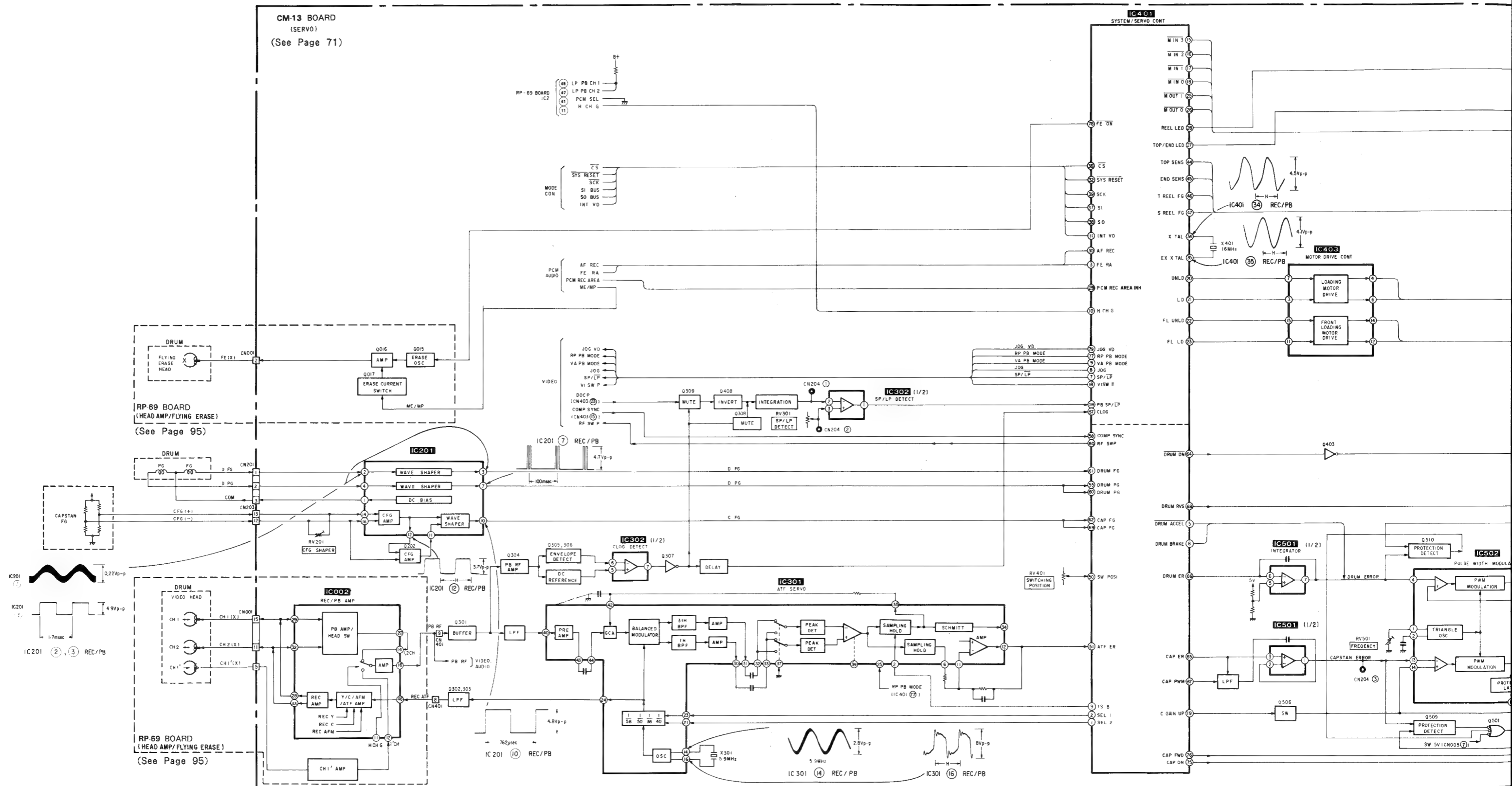


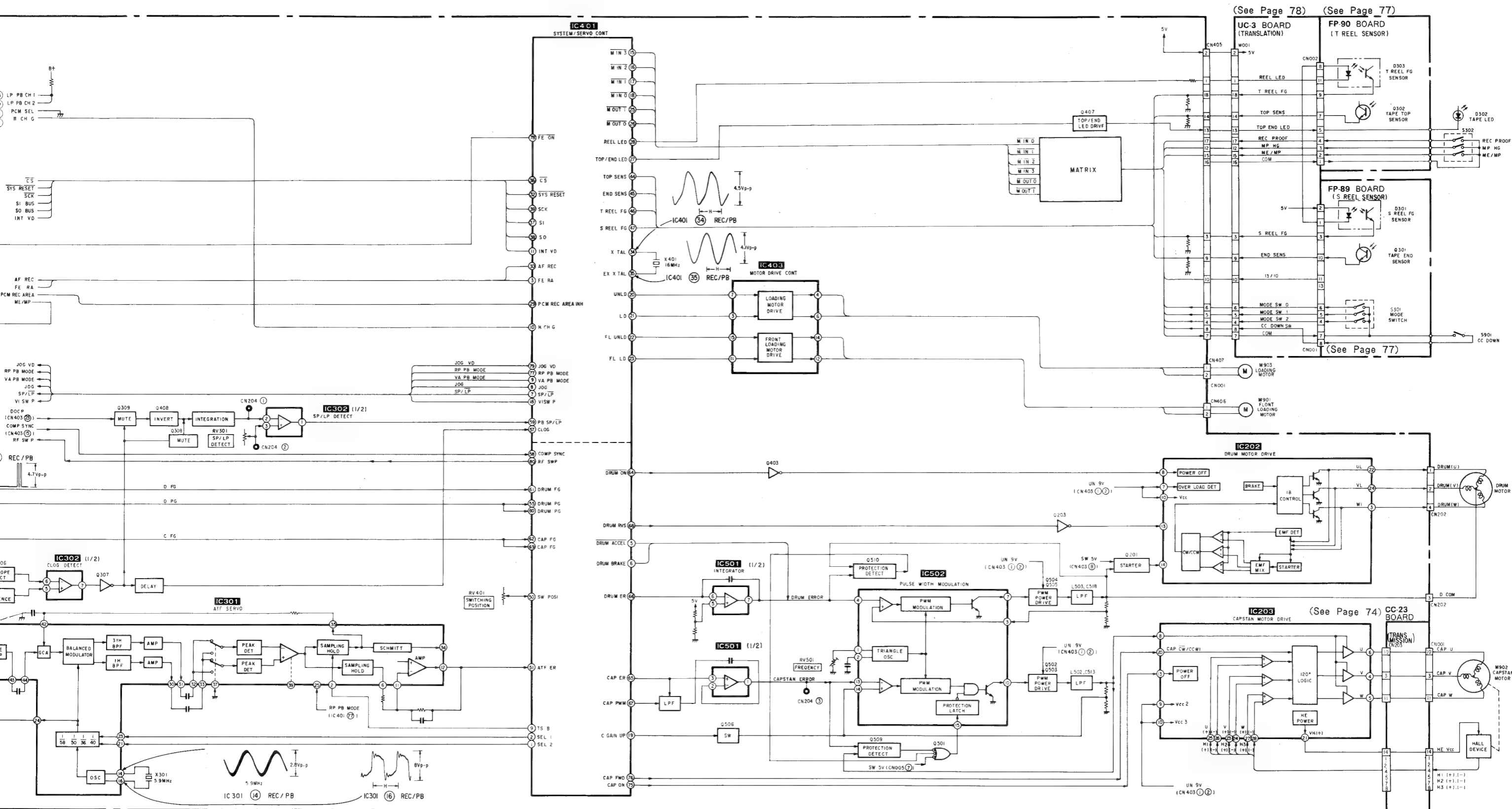
4.4. HEAD AMP BLOCK DIAGRAM





4-5. SERVO BLOCK DIAGRAM





4-6. SYSTEM CONTROL – VIDEO, AUDIO BLOCK INTERFACE (CM-13 BOARD IC401)

| SIGNAL | I/O | Pin No. | EJECTED | THREAD- ING | UN THREAD- ING | STOP | FF | REW | CUE | REVIEW | PB | PB • PAUSE | REC | REC • PAUSE | X2 | SLOW |
|------------|-----|------------------|---------|----------------|----------------------|------------|-----|-----|-----|--------|-----|---------------|-----|----------------|-----|------|
| SEL 2 | O | IC401 ① Pin | H | H | H | H | H | H | *3 | *3 | *2 | H | *1 | L | *17 | *18 |
| SEL 1 | O | IC401 ② Pin | H | H | H | H | H | H | *3 | *3 | *2 | H | *1 | H | *17 | *18 |
| DRUM ON | O | IC401 ④ Pin | H | L | L | H | L | L | L | L | L | L | L | L | L | L |
| INT VD | O | IC401 ⑪ Pin | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 |
| SW POSI | I | IC401 ⑤⑩ Pin | *5 | *5 | *5 | *5 | *5 | *5 | *5 | *5 | *5 | *5 | *5 | *5 | *5 | *5 |
| ATF ERROR | I | IC401 ⑤⑪ Pin | *6 | *6 | *6 | *6 | *7 | *7 | *7 | *7 | *7 | *7 | *6 | *6 | *7 | *7 |
| DRUM PG | I | IC401 ⑤⑤, ⑥⑥ Pin | L | *8 | *8 | L | *8 | *8 | *8 | *8 | *8 | *8 | *8 | *8 | *8 | *8 |
| DRUM FG | I | IC401 ⑥⑪ Pin | H | *9 | *9 | H | *9 | *9 | *9 | *9 | *9 | *9 | *9 | *9 | *9 | *9 |
| CAP FG | I | IC401 ⑥②, ⑥③ Pin | H/L | PULSE | PULSE | H/L | *10 | *10 | *10 | *10 | *10 | H/L | *10 | H/L | *10 | H/L |
| CAP ERH | O | IC401 ⑥⑤ Pin | *11 | *11 | *11 | L | *11 | *11 | *11 | *11 | *11 | L | *11 | L | *11 | *11 |
| DRUM ERROR | O | IC401 ⑥⑥ Pin | L | *12 | *12 | L | *12 | *12 | *12 | *12 | *12 | *12 | *12 | *12 | *12 | *12 |
| CAP PWM | O | IC401 ⑥⑦ Pin | L | *13 | *13 | L | *13 | *13 | *13 | *13 | *13 | L | *13 | L | *13 | *13 |
| DRUM RVS | O | IC401 ⑥⑧ Pin | "L" | *14 | L | L | L | L | L | L | L | L | L | L | L | L |
| CAP ON | O | IC401 ⑦⑤ Pin | L | H | H | L | H | H | H | H | H | L | H | L | H | H/L |
| CAP FWD | O | IC401 ⑦⑥ Pin | L | L | H | L | H | L | H | L | H | H | H | L | H | H/L |
| RF SWP | O | IC401 ⑧⑩ Pin | *16 | *16 | *16 | "H" or "L" | *16 | *16 | *16 | *16 | *16 | *16 | *16 | *16 | *16 | *16 |

*1. Refer to timing chart 1.

*2. Refer to timing chart 2.

*3. Refer to timing chart 3.

*4. 1V period "H" pulse.

*5. DC voltage set with RV102 (Switching position adjustment).

*6. Approx. 2.5Vdc.

*7. ATF error voltage.

*8. 2V period "H" pulse.

*9. 1.4msec period pulse.

*10. Pulses in proportion to frequency of the tape speed.

*11. Pulse output for rising or falling edges of the capstan.

*12. 6msec period PWM signal (tri-state) of "H", "L" and "HI-Z" (2.5Vdc).

*13. 64 μ sec period PWM signal.

*14. Momentary "H" when threading of full top tape.

*16. 2V period duty 50% pulse.

4-7. SYSTEM CONTROL—SERVO PEIPHERAL CIRCUIT INTERFACE (CM-13 BOARD IC401)

| SIGNAL | I/O | Pin No. | STOP | FF | REW | CUE | REVIEW | PB | PB • PAUSE | REC | REC • PAUSE | X2 | SLOW |
|-------------------------------|-----|-------------|--------|-----|-----|-----|--------|-----|---------------|-----|----------------|-----|------|
| LP PB 1 CH | O | CN401 ⑥ Pin | H | H | H | H | H | H | H | L | H | H | H |
| LP PB 2 CH | O | CN401 ⑦ Pin | H | H | H | H | H | H | H | L | H | H | H |
| JOG | O | IC401 ⑧ Pin | L | H | H | H | H | L | H | L | L | H | H |
| SP/ $\overline{\text{LP}}$ | O | IC401 ⑩ Pin | H/L | H/L | H/L | *1 | *1 | *1 | *1 | *2 | *2 | *1 | *1 |
| VA PB MODE | O | IC401 ⑭ Pin | L | L | L | H | H | H | H | L | L | H | H |
| SYS CON SO (SI) | O | IC401 ⑳ Pin | *9 | *9 | *9 | *9 | *9 | *9 | *9 | *9 | *9 | *9 | *9 |
| SYS CON SCK (SCK) | I | IC401 ㉑ Pin | *10 | *10 | *10 | *10 | *10 | *10 | *10 | *10 | *10 | *10 | *10 |
| CLOG | I | IC401 ㉕ Pin | H | *5 | *5 | *5 | *5 | *5 | H | H | H | H | H |
| COMP SYNC | I | IC401 ㉙ Pin | *6 | *6 | *6 | *6 | *6 | *6 | *6 | *6 | *6 | *6 | *6 |
| PB SP/ $\overline{\text{LP}}$ | O | IC401 ㉚ Pin | L | *7 | *7 | *7 | *7 | L | L | L | L | L | L |
| RP PB MODE | O | IC401 ㉞ Pin | L | L | L | H | H | H | H | L | L | H | H |
| $\overline{\text{FF ON}}$ | O | IC401 ㉟ Pin | H | H | H | H | H | H | H | L | H | H | H |
| JOG VD | O | IC401 ㊱ Pin | L | L | L | *3 | *3 | L | *3 | L | L | *3 | *3 |
| RF SWP*1 | O | IC401 ㊲ Pin | 1.8Vdc | *11 | *11 | *11 | *11 | *11 | *11 | *11 | *11 | *11 | *11 |

*1. According to recorded mode of playback tape.
(SP... "H", LP... "L")

*2. According to SP/LP selector (S602) setting.
(SP... "H", LP... "L")

*3. 1V period "H" pulse.

*5. Non-signal "H" normal "L"

*6. Positive compound synchronizing signal.

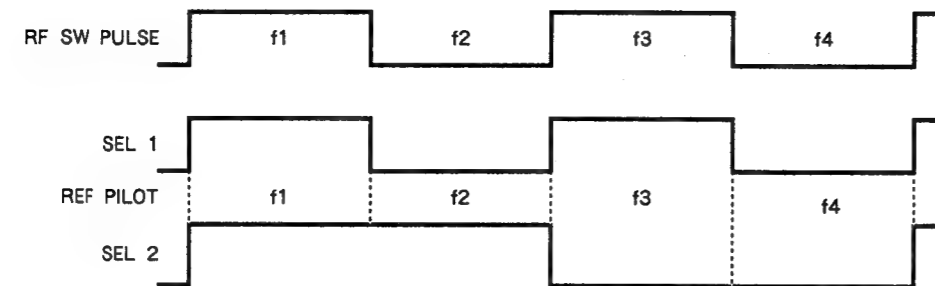
*7. SP mode recording tape "H"
LP mode recording tape "L"

*9. 1V period "L" pulse train.

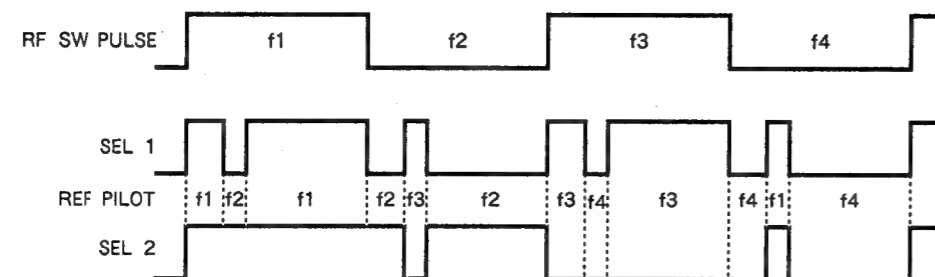
*10. 1V period "L" pulse train.

*11. 2V period duty 50% pulse.

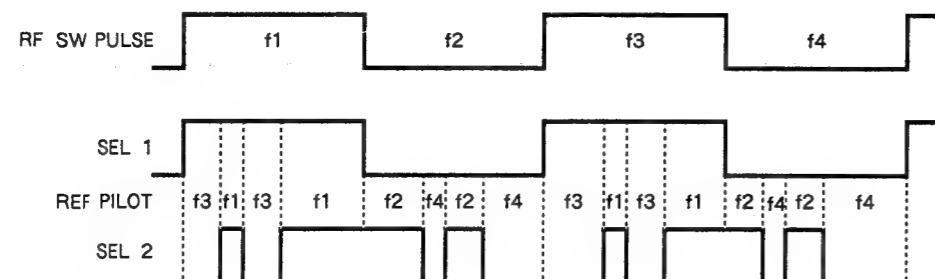
TIMING CHART 1 (REC)



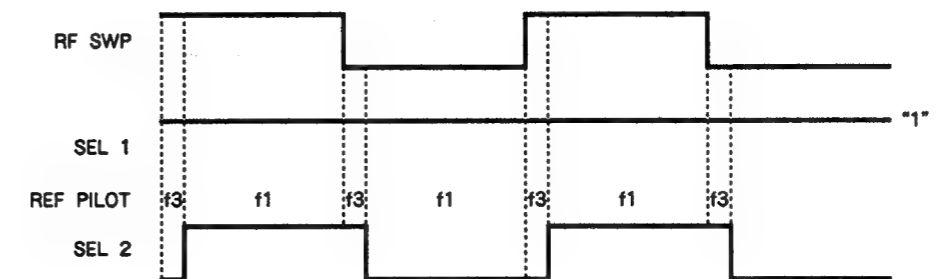
TIMING CHART 2 (PB)



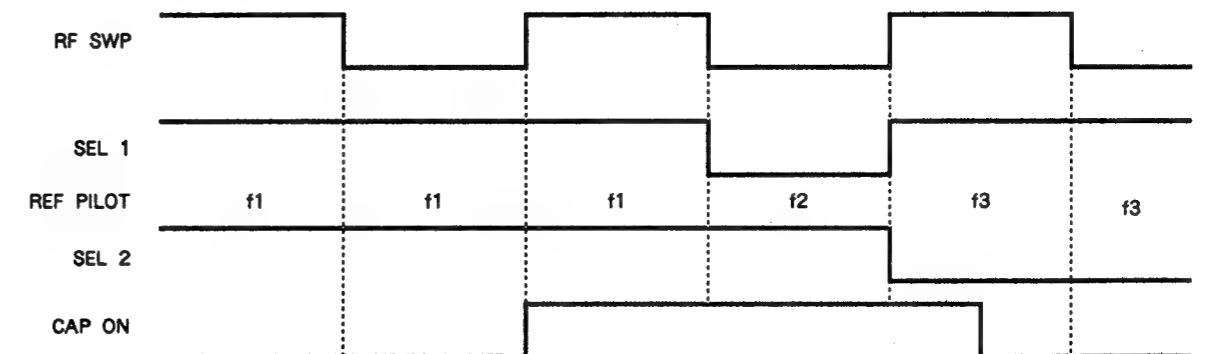
TIMING CHART 3 (CUE/REVIEW)



TIME CHART (×2)



TIME CHART (SLOW)



when f1 still from step.
when from f3 f1⇒f3 f2⇒f4 f3⇒f1

4-8. SYSTEM CONTROL—SYSTEM CONTROL PERIPHERAL CIRCUIT INTERFACE
(CM-13 BOARD IC401)

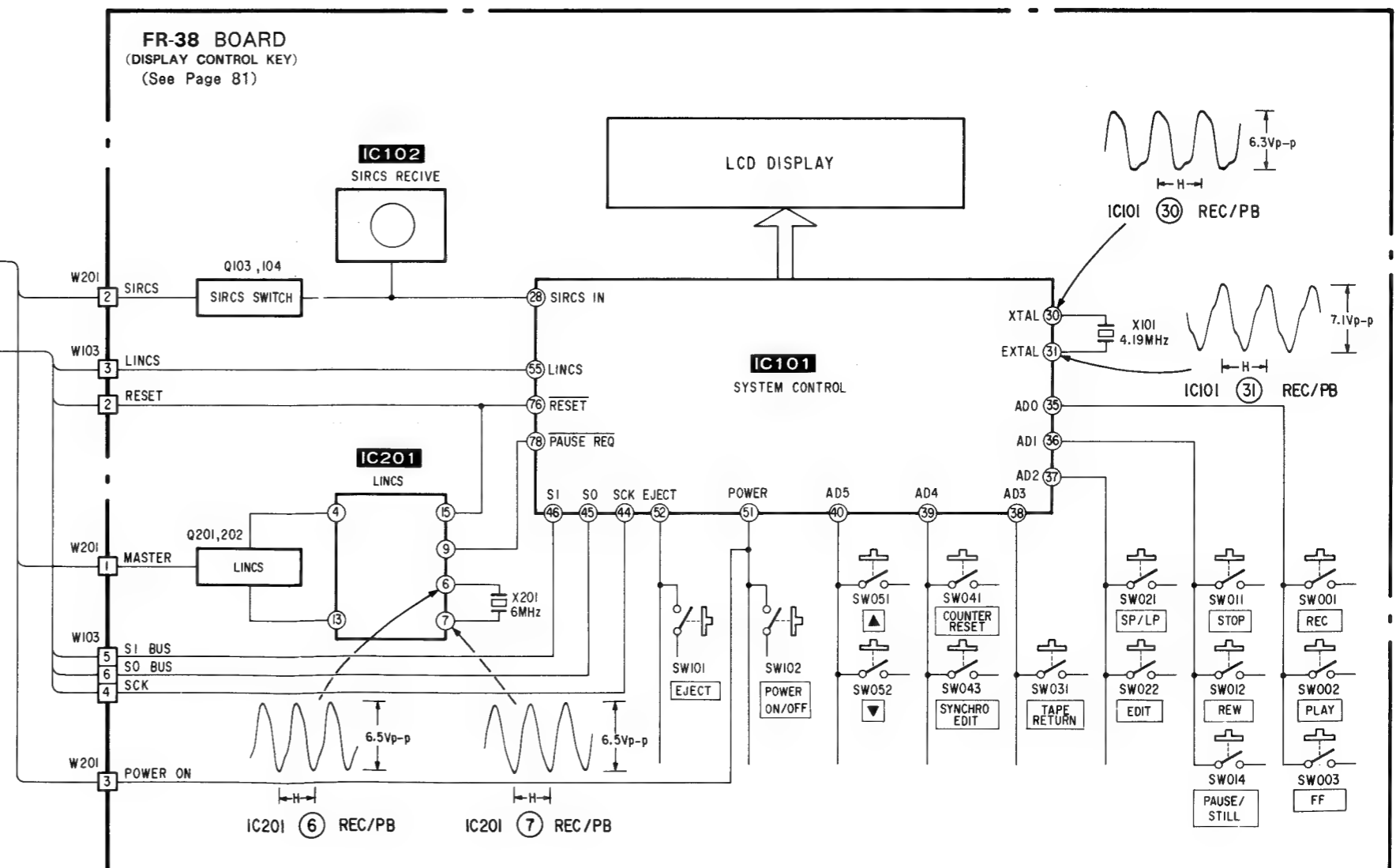
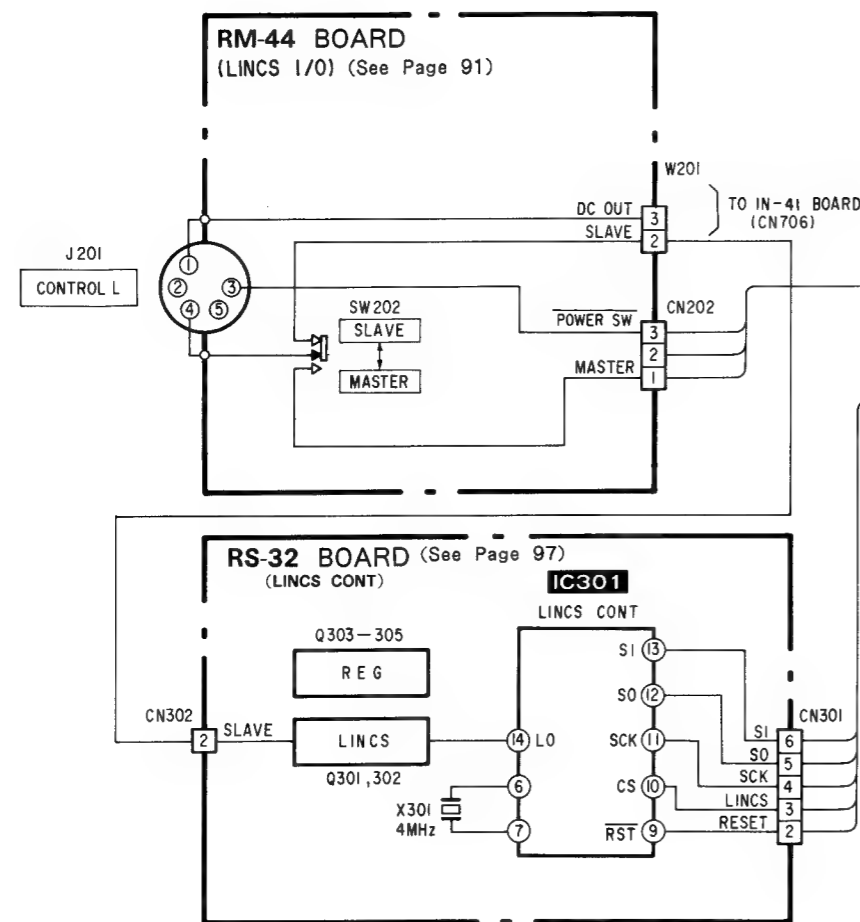
| SIGNAL | I/O | Pin No. | INPUT OUTPUT LEVEL |
|------------|-----|-------------|---|
| SP/LP | O | IC401 ⑫ Pin | "H" in SP recording mode or playback of recorded tape in SP mode |
| RESET | I | IC401 ⑭ Pin | Normally : "H" ("H" when installing power OFF to ON) |
| M IN 3 | I | IC401 ⑮ Pin | No key matrix input signal : "H" (Other : "L") |
| M IN 2 | I | IC401 ⑯ Pin | No key matrix input signal : "H" (Other : "L") |
| M IN 1 | I | IC401 ⑰ Pin | No key matrix input signal : "H" (Other : "L") |
| M IN 0 | I | IC401 ⑱ Pin | No key matrix input signal : "H" (Other : "L") |
| T/E LED | O | IC401 ㉑ Pin | PB/REC/PB • PAUSE/REC • PAUSE : 100msec period "H" pulse, STOP/CUE/REVIEW : 10msec period "H" pulse, FF/REW : 2msec period "H" pulse, EJECT or CASSETTE IN detecting : 22msec period "H" pulse |
| M OUT 2 | O | IC401 ㉒ Pin | 20msec period "H" pulse |
| M OUT 1 | O | IC401 ㉓ Pin | 20msec period "L" pulse |
| M OUT 0 | O | IC401 ㉔ Pin | 20msec period "L" pulse |
| MECHA CS | I | IC401 ㉕ Pin | 1V period "L" pulse |
| SYS CON SI | I | IC401 ㉖ Pin | 1V period "H" pulse train |
| SYS CON SO | O | IC401 ㉗ Pin | 1V period "L" pulse train |

| SIGNAL | I/O | Pin No. | INPUT OUTPUT LEVEL |
|-------------|-----|-------------|---|
| SYS CON SCK | I | IC401 ㉘ Pin | 1V period "L" pulse train |
| CLOG | I | IC401 ㉙ Pin | Normal playback : "L" ("H" when PB RF signal is not reproduced due to head clog, etc.) |
| PB SP/LP | I | IC401 ㉚ Pin | Recording speed mode detection signal in FF, REW, CUE or REVIEW ("H" in SP mode, "L" in LP mode) |
| UNLD | O | IC401 ㉛ Pin | Normally : "L" ("H" in Unthreading, pulse is output in Mechanical mode transition) |
| LD | O | IC401 ㉜ Pin | Normally : "L" ("H" in Threading, "H" pulse is output in Mechanical mode transition) |
| FL UNLD | O | IC401 ㉝ Pin | Normally : "L" ("H" in Front roading) |
| LD | O | IC401 ㉞ Pin | Normally : "L" ("H" in Front unroading) |
| FERA | O | IC401 ㉟ Pin | Normally : "L" ("H" in After recording mask eria) |
| VI SWP | O | IC401 ㊱ Pin | Normally slow shared SWP, "H" in only STILL |
| DRUM ACCELL | O | IC401 ㊲ Pin | Normally : "H" (An instant "L" in slow) |
| DRUM BRAKE | O | IC401 ㊳ Pin | Normally : "L" (An instant "H" in LP slow) |
| TS B | O | IC401 ㊴ Pin | ATF AGC pulse |
| H CHG | O | IC401 ㊵ Pin | Normally : "L", when slow, STILL is unphase |
| C GAIN UP | O | IC401 ㊶ Pin | Normally : "L" ("H" in FF/REW) |
| REEL LED | O | IC401 ㊷ Pin | Reel led flicker pulse |

4-9. SYSTEM CONTROL—MECHANISM BLOCK INTERFACE (CM-13 BOARD IC401, CN405)

| SIGNAL | I/O | Pin No. | INPUT OUTPUT LEVEL | | | | | | | | | | | | | | | | | | | | |
|-----------------|---------|--------------------------|--|------|--|--------------------------|------|--|-----------------|---|---|---|---|-----------------|---|---|---|---|-----------------|---|---|---|---|
| S REEL FG | I | IC401 ④ Pin | Pulse (5.0Vp-p) that is generated by S-reel rotation. It is approx. 1sec period in REC/PB (SP) mode. | | | | | | | | | | | | | | | | | | | | |
| MODE SW 2 | I | CN405 ④ Pin | <div>Pins are connected to mode switch for mechanical position detection.</div> <table><tr><th></th><th>EJECTED</th><th>THREADING UNTHREADING</th><th>STOP</th><th>REC/PB/FF/ REW/CUE/ REVIEW/PAUSE</th></tr><tr><td>MODE SW 2 (④-⑦)</td><td>○</td><td>×</td><td>×</td><td>○</td></tr><tr><td>MODE SW 1 (⑤-⑦)</td><td>○</td><td>○</td><td>○</td><td>×</td></tr><tr><td>MODE SW 0 (⑥-⑦)</td><td>×</td><td>×</td><td>○</td><td>○</td></tr></table> <div>×...Open ○...Short</div> | | EJECTED | THREADING UNTHREADING | STOP | REC/PB/FF/ REW/CUE/ REVIEW/PAUSE | MODE SW 2 (④-⑦) | ○ | × | × | ○ | MODE SW 1 (⑤-⑦) | ○ | ○ | ○ | × | MODE SW 0 (⑥-⑦) | × | × | ○ | ○ |
| | EJECTED | THREADING UNTHREADING | | STOP | REC/PB/FF/ REW/CUE/ REVIEW/PAUSE | | | | | | | | | | | | | | | | | | |
| MODE SW 2 (④-⑦) | ○ | × | | × | ○ | | | | | | | | | | | | | | | | | | |
| MODE SW 1 (⑤-⑦) | ○ | ○ | | ○ | × | | | | | | | | | | | | | | | | | | |
| MODE SW 0 (⑥-⑦) | × | × | | ○ | ○ | | | | | | | | | | | | | | | | | | |
| MODE SW 1 | I | CN405 ⑤ Pin | | | | | | | | | | | | | | | | | | | | | |
| MODE SW 0 | I | CN405 ⑥ Pin | | | | | | | | | | | | | | | | | | | | | |
| M OUT 0 (COM) | O | CN405 ⑦ Pin | | | | | | | | | | | | | | | | | | | | | |
| CC DOWN | I | CN405 ⑧ Pin | It is connected to cassette compartment down detection (CC DOWN) switch. When cassette compartment comes down, Pins ⑧ and ⑦ are short-circuited. When cassette compartment comes up, connection between Pins ⑧ and ⑦ open. | | | | | | | | | | | | | | | | | | | | |
| M OUT 0 (COM) | O | CN405 ⑦ Pin | | | | | | | | | | | | | | | | | | | | | |
| END SENS | I | CN405 ⑨ Pin | Normally : "L" ("H" pulse is output in tape end or cassette unloaded) | | | | | | | | | | | | | | | | | | | | |
| 13/10 | I | CN405 ⑩ Pin | Not used | | | | | | | | | | | | | | | | | | | | |
| MP HG | I | CN405 ⑪ Pin | "H" pulse (20msec period) is output when normal MP tape is used. | | | | | | | | | | | | | | | | | | | | |
| TOP END LED | I | CN405 ⑬ Pin | "L" pulse (approx. 1Vp-p) (pulse period is changed from 12 to 170msec according to operation mode.) | | | | | | | | | | | | | | | | | | | | |
| TOP SENS | O | CN405 ⑭ Pin | Normally : "L" ("H" pulse is output in tape top or cassette unloaded) | | | | | | | | | | | | | | | | | | | | |
| ME/MP | I | CN405 ⑮ Pin | "L" in MP tape ("H" pulse (20msec period) in cassette unloaded) | | | | | | | | | | | | | | | | | | | | |
| REC PROOF | I | CN405 ⑰ Pin | "L" when recording possible cassette is loaded "H" pulse (20msec period) is output, when recording inhibiting cassette is loaded. | | | | | | | | | | | | | | | | | | | | |
| T REEL FG | I | CN405 ⑱ Pin | Pulse (5.0Vp-p) that is generated by T-reel rotation, in REC/PB (SP) mode, it is approx. 1sec period. | | | | | | | | | | | | | | | | | | | | |

4-10. DISPLAY CONTROL BLOCK DIAGRAM



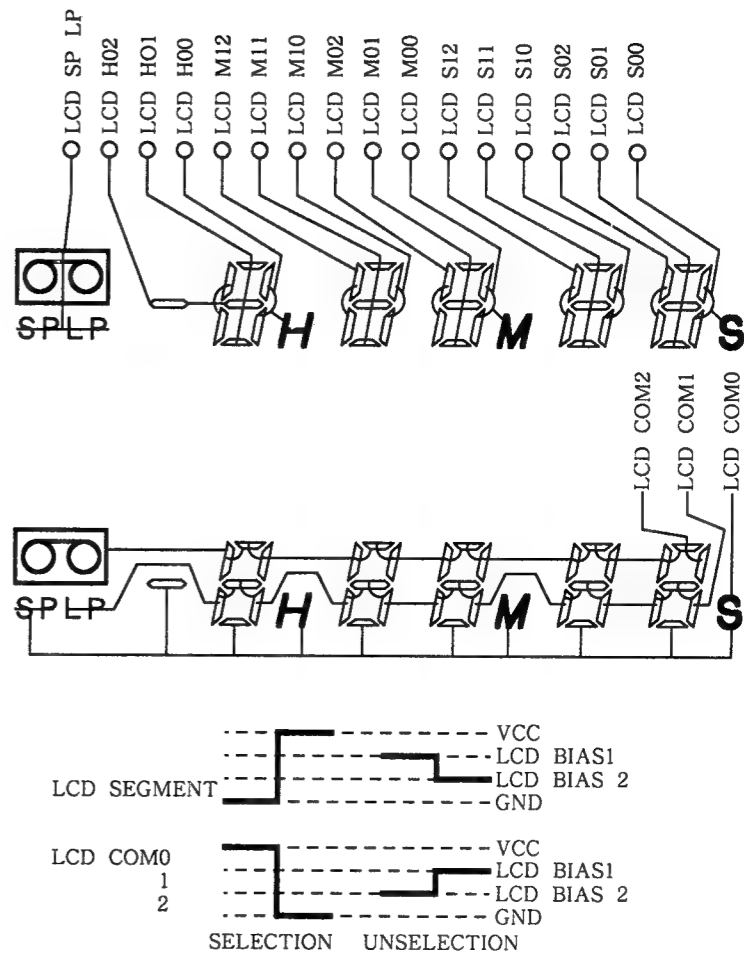
4-11. PIN ASSIGNMENT CXP-5078 (IC101) SYSTEM CONTROL/MODE CONTROL BLOCK INTERFACE (FR BOARD IC101)

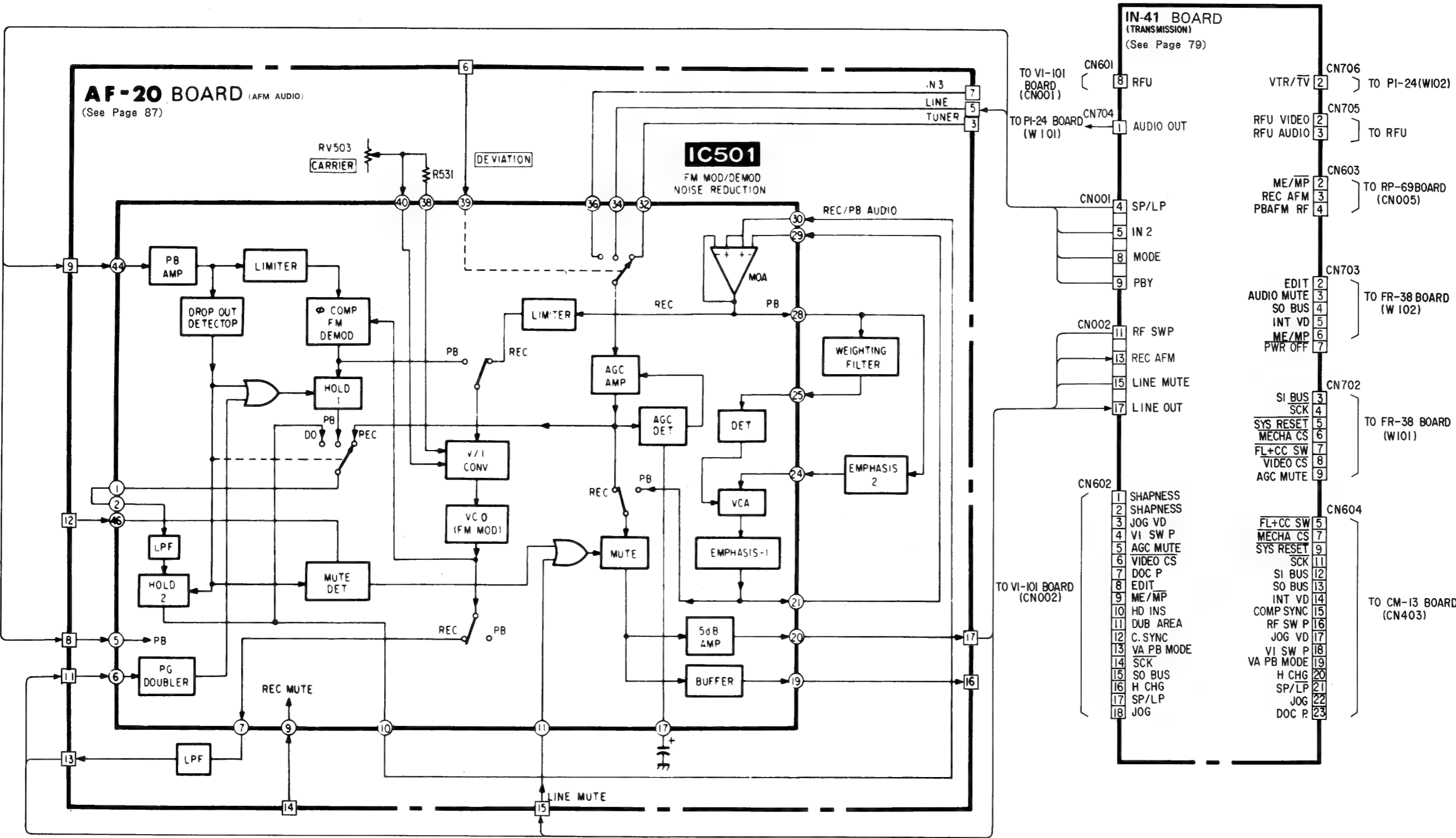
| Pin. No. | I/O | SIGNAL/INPUT OUTPUT LEVEL | Pin. No. | I/O | SIGNAL/INPUT OUTPUT LEVEL | Pin. No. | I/O | SIGNAL/INPUT OUTPUT LEVEL |
|----------|-----|---------------------------|----------|-----|------------------------------|----------|-----|--|
| 1 | O | AGC MUTE | 28 | I | SIRCS IN | 55 | O | LINCS $\overline{\text{CS}}$ |
| 2 | O | _____ | 29 | I | INT VD | 56 | O | $\overline{\text{MECHA CS}}$ |
| 3 | O | _____ | 30 | O | XTAL | 57 | O | $\overline{\text{VIDEO CS}}$ |
| 4 | O | LCD SP/LP | 31 | I | EXTAL | 58 | O | $\text{ME} \cdot \overline{\text{MP}}$ |
| 5 | O | LCD H02 | 32 | I | $\overline{\text{RST}}$ | 59 | O | _____ |
| 6 | O | LCD H01 | 33 | | (int. VDD) | 60 | O | _____ |
| 7 | O | LCD H00 | 34 | | VDD | 61 | I | ("L") |
| 8 | O | LCD M12 | 35 | I | AD 0 | 62 | I | ("L") |
| 9 | O | LCD M11 | 36 | I | AD 1 | 63 | O | $\overline{\text{PB LED}}$ |
| 10 | O | LCD M10 | 37 | I | AD 2 | 64 | O | POWER OFF |
| 11 | O | LCD M02 | 38 | I | AD 3 | 65 | O | $\overline{\text{REC LED}}$ |
| 12 | O | LCD M01 | 39 | I | AD 4 | 66 | O | $\overline{\text{PAUSE LED}}$ |
| 13 | O | LCD M00 | 40 | I | AD 5 | 67 | O | _____ |
| 14 | O | LCD S12 | 41 | I | ("H") | 68 | O | _____ |
| 15 | O | LCD S11 | 42 | I | ("H") | 69 | O | _____ |
| 16 | O | LCD S10 | 43 | | N. C. | 70 | O | _____ |
| 17 | O | LCD S02 | 44 | O | $\overline{\text{SCK}}$ | 71 | | GND |
| 18 | O | LCD S01 | 45 | O | SO BUS | 72 | O | _____ |
| 19 | O | LCD S00 | 46 | I | SI BUS | 73 | | (int. VDD) |
| 20 | O | _____ | 47 | I | ("L") | 74 | I | ("H") |
| 21 | O | LCD COM 2 | 48 | O | EDIT | 75 | | VREF |
| 22 | O | LCD COM 1 | 49 | I | ("H") | 76 | O | $\overline{\text{RESET}}$ |
| 23 | O | LCD COM 0 | 50 | I | ("L") | 77 | O | _____ |
| 24 | I | LCD BIAS 1 | 51 | I | POWER SW | 78 | O | $\overline{\text{PAUSE REQ}}$ |
| 25 | I | LCD BIAS 2 | 52 | I | EJECT SW | 79 | O | $\overline{\text{SYNCHRO EDIT LED}}$ |
| 26 | I | LCD BIAS 3 | 53 | I | $\overline{\text{FL+CC SW}}$ | 80 | O | AUDIO MUTE |
| 27 | O | _____ | 54 | I | ("H") | | | |

MODE CONTROL (IC101)

| SIGNAL | I/O | Pin. No. | INPUT OUTPUT LEVEL | | | | | | | | | | |
|-------------------------------|-----------|-------------|---|-------|--------------|--------|---|---|-----------|-----------|-----------|-----------|-------|
| $\overline{\text{RST}}$ | I | IC101 ② Pin | Mode control reset signal (AC power ON/OFF) | | | | | | | | | | |
| RESET | O | IC101 ⑦ Pin | Reset signal output (Set power ON/OFF) : Mechanism control, LINCS MASTER microcomputer (FR-38 board) LINCS SLAVE microcomputer (RS-32 board) | | | | | | | | | | |
| INT VD | I | IC101 ③ Pin | V sync timing signal : Input mechanism control (CM-13 board) | | | | | | | | | | |
| $\overline{\text{SCK}}$ | O | IC101 ④ Pin | Data input output timing (SI, SO, BUS) : Mechanism control (CM-13 board), LINCS SLAVE microcomputer (RS-32 board), VIDEO IC (VI-52 board) | | | | | | | | | | |
| SO BUS | O | IC101 ⑤ Pin | Serial data output : Mechanism control (CM-13 board), LINCS SLAVE microcomputer (RS-32 board), VIDEO IC (VI-52 board) | | | | | | | | | | |
| SI BUS | I | IC101 ⑥ Pin | Serial data output : Mechanism control (CM-13 board), LINCS SLAVE microcomputer (RS-32 board) | | | | | | | | | | |
| $\overline{\text{MECHA CS}}$ | O | IC101 ⑧ Pin | Mechanism control chip select (CM-13 board) | | | | | | | | | | |
| $\overline{\text{LINCS CS}}$ | O | IC101 ⑨ Pin | LINCS SLAVE microcomputer chip select (RS-32 board) | | | | | | | | | | |
| $\overline{\text{VIDEO CS}}$ | O | IC101 ⑩ Pin | VIDEO IC chip select (VI-52 board) | | | | | | | | | | |
| $\overline{\text{PAUSE REQ}}$ | O | IC101 ⑪ Pin | LINCS MASTER microcomputer control (FR-38 board) An instant "L" in SYNCHRO EDIT mode ON/OFF. | | | | | | | | | | |
| SIRCS IN | I | IC101 ⑫ Pin | Input SIRCS signal, CONTROL S signal | | | | | | | | | | |
| $\overline{\text{FL+CC SW}}$ | I | IC101 ⑬ Pin | Power OFF (Setting the cassette-tape) | | | | | | | | | | |
| POWER SW | I | IC101 ⑭ Pin | Input button (Set power ON/OFF) | | | | | | | | | | |
| EDIT SW | I | IC101 ⑮ Pin | Input button (EDIT ON/OFF) | | | | | | | | | | |
| | | | FUNCTION KEY (A/D Converter) | | | | | | | | | | |
| | | | <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>(1/5 Vcc)</td><td>(2/5 Vcc)</td><td>(3/5 Vcc)</td><td>(4/5 Vcc)</td><td>(Vcc)</td></tr></table> | 1 | 2 | 3 | 4 | 5 | (1/5 Vcc) | (2/5 Vcc) | (3/5 Vcc) | (4/5 Vcc) | (Vcc) |
| 1 | 2 | 3 | 4 | 5 | | | | | | | | | |
| (1/5 Vcc) | (2/5 Vcc) | (3/5 Vcc) | (4/5 Vcc) | (Vcc) | | | | | | | | | |
| AD0 | I | IC101 ⑯ Pin | REC | PB | FF | - | - | | | | | | |
| AD1 | I | IC101 ⑰ Pin | STOP | REW | - | PAUSE | - | | | | | | |
| AD2 | I | IC101 ⑱ Pin | SP/LP | EDIT | - | - | - | | | | | | |
| AD3 | I | IC101 ⑲ Pin | TAPE RETURN | - | - | TEST 2 | - | | | | | | |
| AD4 | I | IC101 ⑳ Pin | COUNTER RESET | - | SYNCHRO EDIT | TEST 1 | - | | | | | | |
| AD5 | I | IC101 ㉑ Pin | ▽ | Δ | - | - | - | | | | | | |

| SIGNAL | I/O | Pin. No. | INPUT OUTPUT LEVEL |
|--------------------------------------|-----|-------------|--|
| AUDIO MUTE | O | IC101 ④ Pin | "H" in mute (Audio signal mute) |
| AGC MUTE | O | IC101 ① Pin | An instant "H" (mute) PB to E-E mode |
| EDIT | O | IC101 ④ Pin | EDIT mode "H" |
| ME $\overline{\text{MP}}$ | O | IC101 ⑤ Pin | MP tape "L" |
| $\overline{\text{PB LED}}$ | O | IC101 ③ Pin | PB mode "L" |
| POWER OFF | O | IC101 ④ Pin | "L" in power control set power ON, "H" in set power OFF. |
| $\overline{\text{REC LED}}$ | O | IC101 ⑤ Pin | REC mode "L" |
| $\overline{\text{PAUSE LED}}$ | O | IC101 ⑥ Pin | STILL, REC PAUSE mode "L" |
| $\overline{\text{SYNCHRO EDIT LED}}$ | O | IC101 ⑦ Pin | SYNCHRO EDIT mode "L" |
| LCD BIAS 1 | I | IC101 ② Pin | 2/3 Vcc |
| LCD BIAS 2 | I | IC101 ⑤ Pin | 1/3 Vcc |
| LCD BIAS 3 | I | IC101 ③ Pin | GND |

| SIGNAL | I/O | Pin. No. | INPUT OUTPUT LEVEL |
|-----------|-----|-------------|---|
| LCD SP/LP | O | IC101 ④ Pin |  <p>The diagram shows two sets of LCD pin headers. The top header has pins for LCD SP/LP, LCD H02, LCD H01, LCD H00, LCD M12, LCD M11, LCD M10, LCD M02, LCD M01, LCD M00, LCD S12, LCD S11, LCD S10, LCD S02, LCD S01, and LCD S00. The bottom header has pins for LCD COM2, LCD COM1, and LCD COM0. Waveforms for LCD SEGMENT and LCD COM0 1 and 2 are shown, indicating VCC, LCD BIAS1, LCD BIAS 2, and GND levels for SELECTION and UNSELECTION states.</p> |
| LCD H02 | O | IC101 ⑤ Pin | |
| LCD H01 | O | IC101 ⑥ Pin | |
| LCD H00 | O | IC101 ⑦ Pin | |
| LCD M12 | O | IC101 ⑧ Pin | |
| LCD M11 | O | IC101 ⑨ Pin | |
| LCD M10 | O | IC101 ⑩ Pin | |
| LCD M02 | O | IC101 ⑪ Pin | |
| LCD M01 | O | IC101 ⑫ Pin | |
| LCD M00 | O | IC101 ⑬ Pin | |
| LCD S12 | O | IC101 ⑭ Pin | |
| LCD S11 | O | IC101 ⑮ Pin | |
| LCD S10 | O | IC101 ⑯ Pin | |
| LCD S02 | O | IC101 ⑰ Pin | |
| LCD S01 | O | IC101 ⑱ Pin | |
| LCD S00 | O | IC101 ⑲ Pin | |
| LCD COM 2 | O | IC101 ⑳ Pin | |
| LCD COM 1 | O | IC101 ㉑ Pin | |
| LCD COM 0 | O | IC101 ㉒ Pin | |



SECTION 5
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS
5-1. FRAME SCHEMATIC DIAGRAM

TO PI-24(WI02)

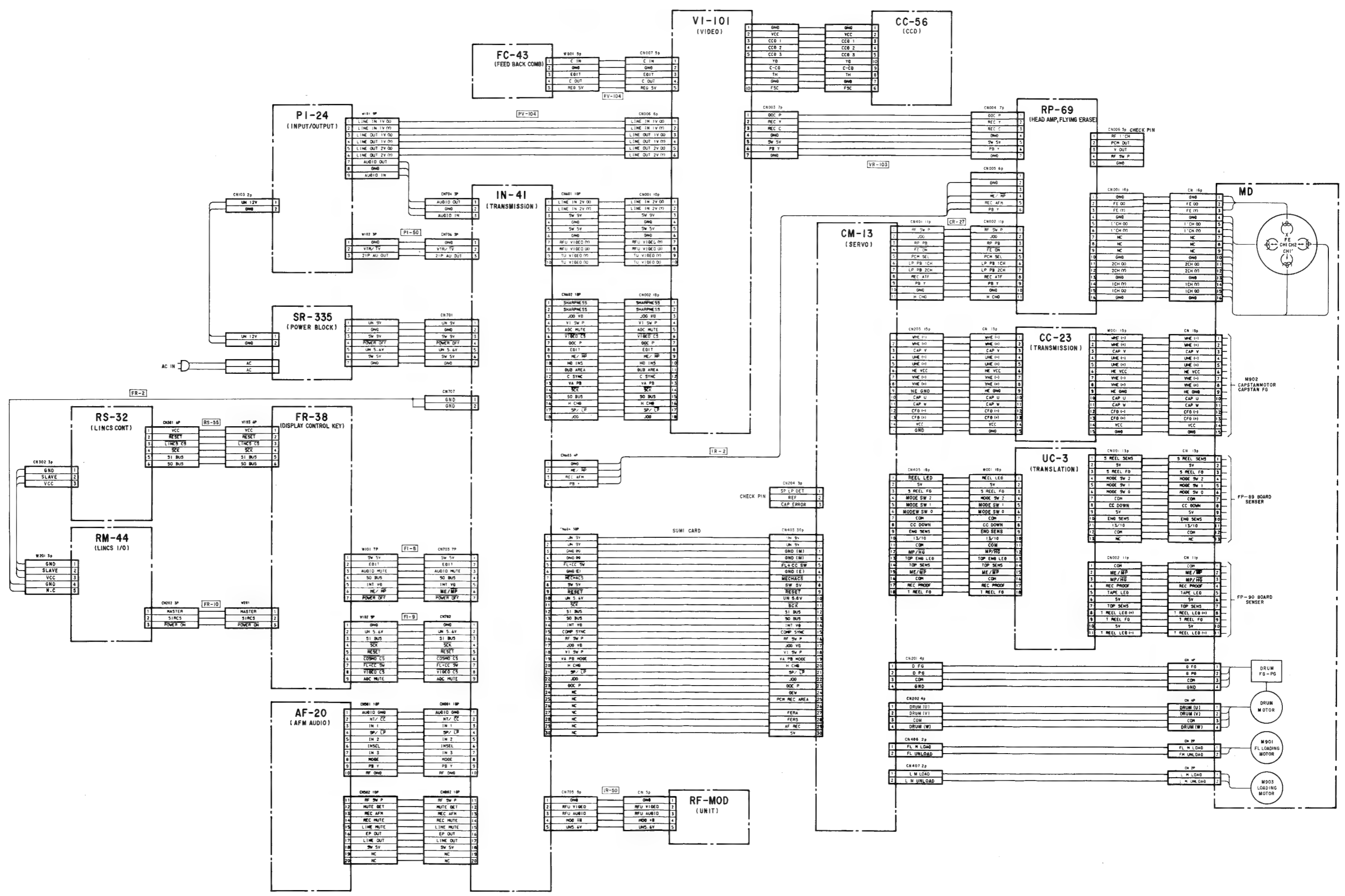
TO RFU

TO RP-69BOARD
(CN005)

TO FR-38 BOARD
(W I02)

TO FR-38 BOARD
(WI01)

TO CM-13 BOARD
(CN403)



5-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For printed wiring boards :

- : indicates a lead wire mounted on the component side.
- : Through hole.
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.
- : Circled numbers refer to waveforms.

Note :

Conductor side : Parts on the conductor side being seen from the conductor are stated.
Component side : Parts on the component side being seen from the component are stated.

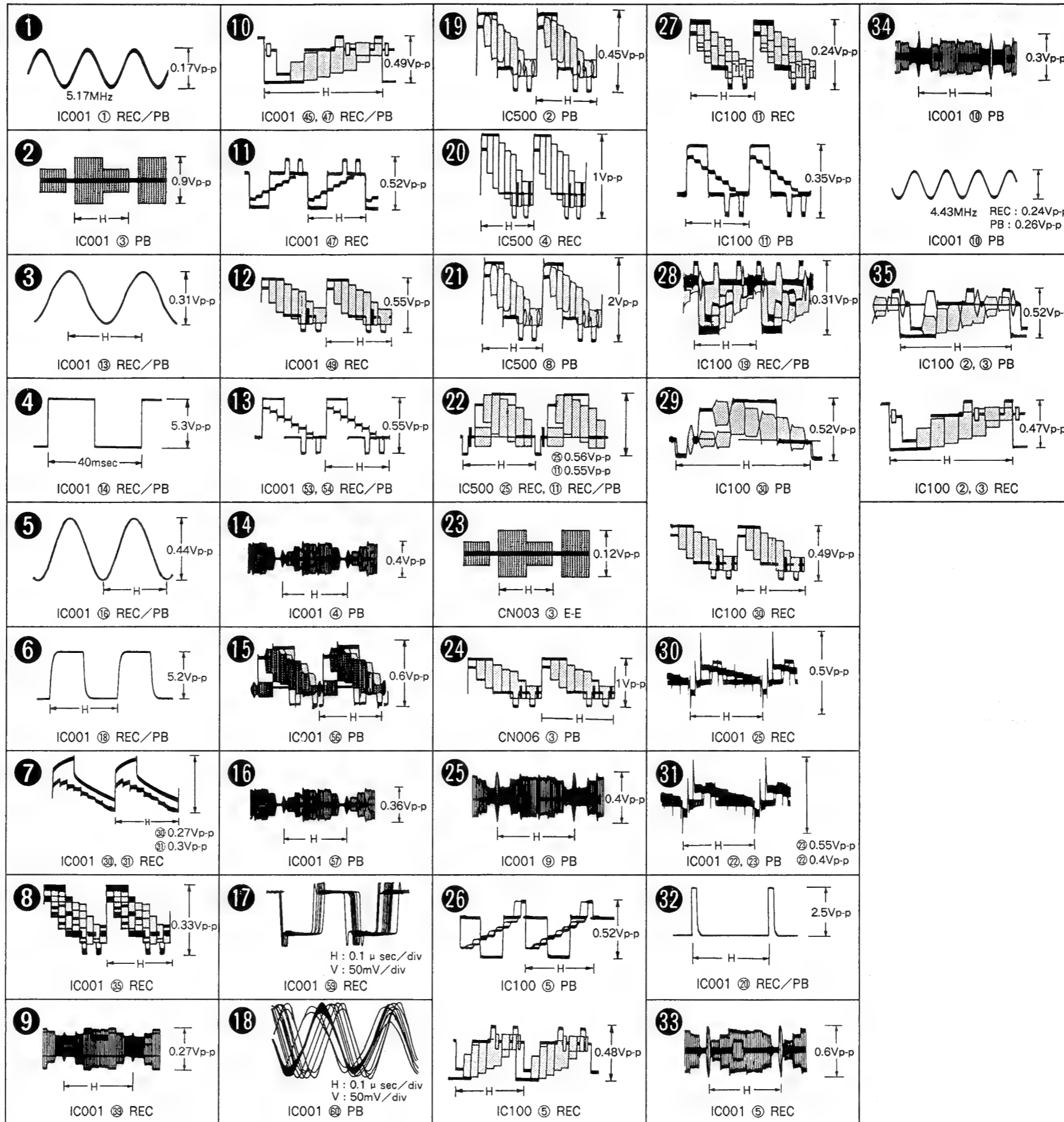
For schematic diagram :

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, chip resistors are 1/10W unless otherwise noted. $k\Omega$: 1000 Ω , $M\Omega$: 1000k Ω .
- All capacitors are in μF unless otherwise noted. pF : μF . 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- △ : internal component.
- : adjustment for repair.
- : B+ line.
- ▧ : IN/OUT direction of B line (+).
- Circled numbers refer to waveforms.
- Voltages are dc between ground and measurement points.
- Readings are taken with color-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltages are taken with a VOM (Input impedance 10M Ω).
- Voltage variations may be noted due to normal production tolerances.

The components identified by mark **A** or dotted line with mark **A** are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

VI-101 BOARD



VI-101 Board

| | |
|-------|------|
| D001 | C-9 |
| D002 | F-9 |
| D250 | F-12 |
| D400 | B-14 |
| D401 | A-14 |
| D500 | H-5 |
| D501 | H-6 |
| IC001 | E-7 |
| IC400 | B-12 |
| IC500 | H-4 |
| Q001 | E-5 |
| Q003 | D-6 |
| Q004 | C-6 |
| Q005 | B-6 |
| Q006 | B-6 |
| Q007 | A-6 |
| Q008 | A-6 |
| Q009 | C-6 |
| Q010 | D-6 |
| Q011 | B-8 |
| Q012 | C-9 |
| Q013 | B-10 |
| Q014 | B-10 |
| Q015 | B-9 |
| Q019 | D-9 |
| Q020 | F-10 |
| Q021 | G-9 |
| Q022 | H-8 |
| Q023 | G-6 |
| Q024 | D-15 |
| Q200 | D-11 |
| Q201 | C-12 |
| Q202 | E-11 |
| Q203 | H-12 |
| Q204 | H-11 |
| Q205 | H-11 |
| Q251 | F-12 |
| Q252 | G-12 |
| Q253 | G-12 |
| Q254 | G-12 |
| Q255 | G-11 |
| Q256 | G-10 |
| Q257 | D-12 |
| Q260 | H-10 |
| Q309 | E-2 |
| Q310 | G-15 |
| Q311 | F-15 |
| Q312 | E-15 |
| Q313 | E-15 |
| Q400 | A-13 |
| Q401 | A-13 |
| Q402 | A-11 |
| Q403 | A-13 |
| Q404 | A-13 |
| Q405 | B-11 |
| Q500 | H-5 |
| Q501 | H-5 |
| Q502 | G-2 |
| Q503 | G-3 |
| Q505 | I-5 |
| Q900 | H-13 |
| Q901 | H-13 |

VI-101 (VIDEO) PRINTED WIRING BOARDS

—Ref. No. VI-101 BOARD : 1,000 Series—

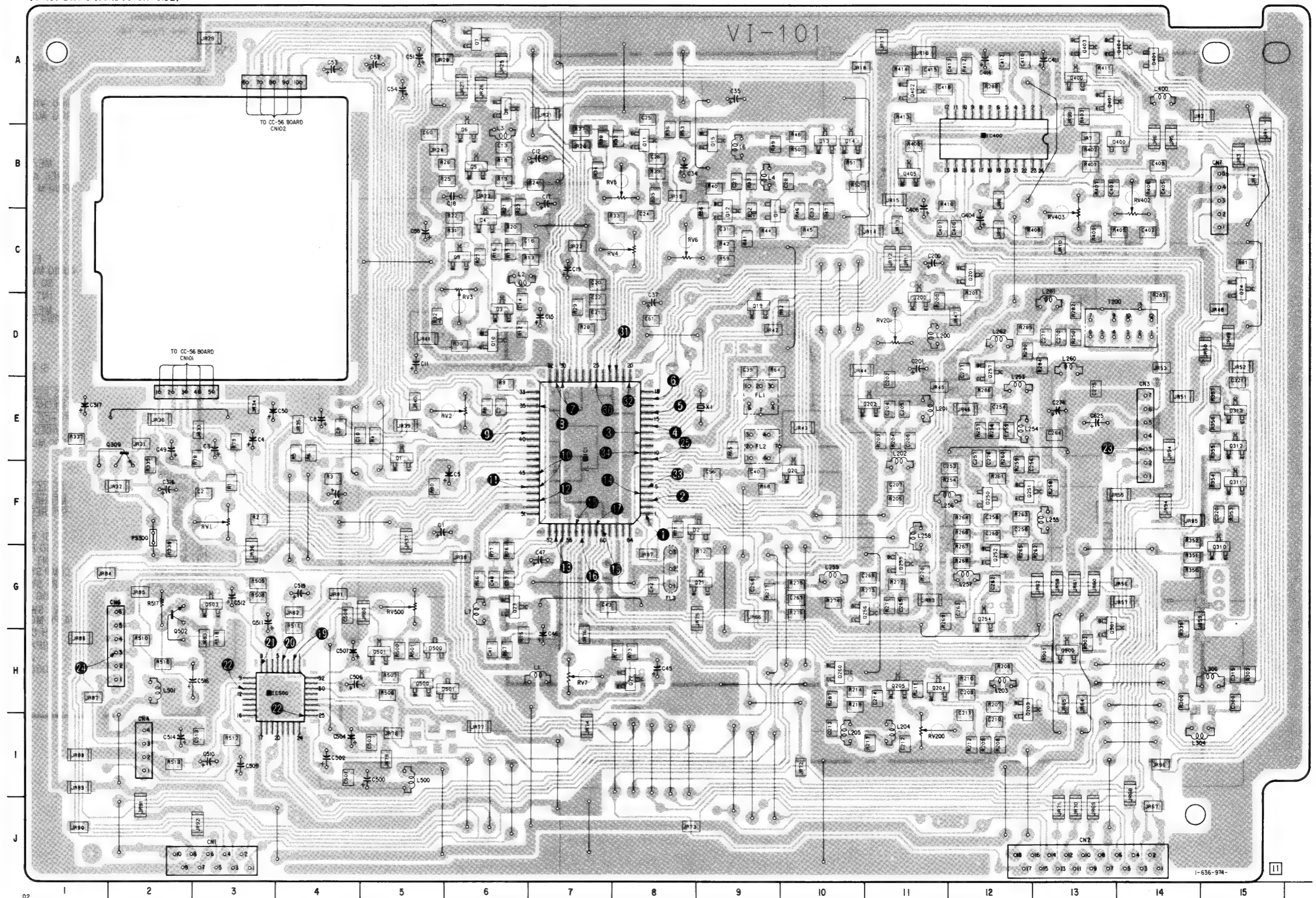
VI-101 Board

D001 C-9
D002 F-9
D250 F-12
D400 B-14
D401 A-14
D500 H-5
D501 H-6

IC001 E-7
IC400 B-12
IC500 H-4

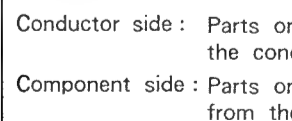
Q001 E-5
Q003 D-6
Q004 C-6
Q005 B-6
Q006 B-6
Q007 A-6
Q008 A-6
Q009 C-6
Q010 D-6
Q011 B-8
Q012 C-9
Q013 B-10
Q014 B-10
Q015 B-9
Q019 D-9
Q020 F-10
Q021 G-9
Q022 H-8
Q023 G-6
Q024 D-15
Q200 D-11
Q201 C-12
Q202 E-11
Q203 H-12
Q204 H-11
Q205 H-11
Q251 F-12
Q252 G-12
Q253 G-12
Q254 G-12
Q255 G-11
Q256 G-10
Q257 D-12
Q260 H-10
Q309 E-2
Q310 G-15
Q311 F-15
Q312 E-15
Q313 E-15
Q400 A-13
Q401 A-13
Q402 A-11
Q403 A-13
Q404 A-13
Q405 B-11
Q500 H-5
Q501 H-5
Q502 G-2
Q503 G-3
Q505 I-5
Q900 H-13
Q901 H-13

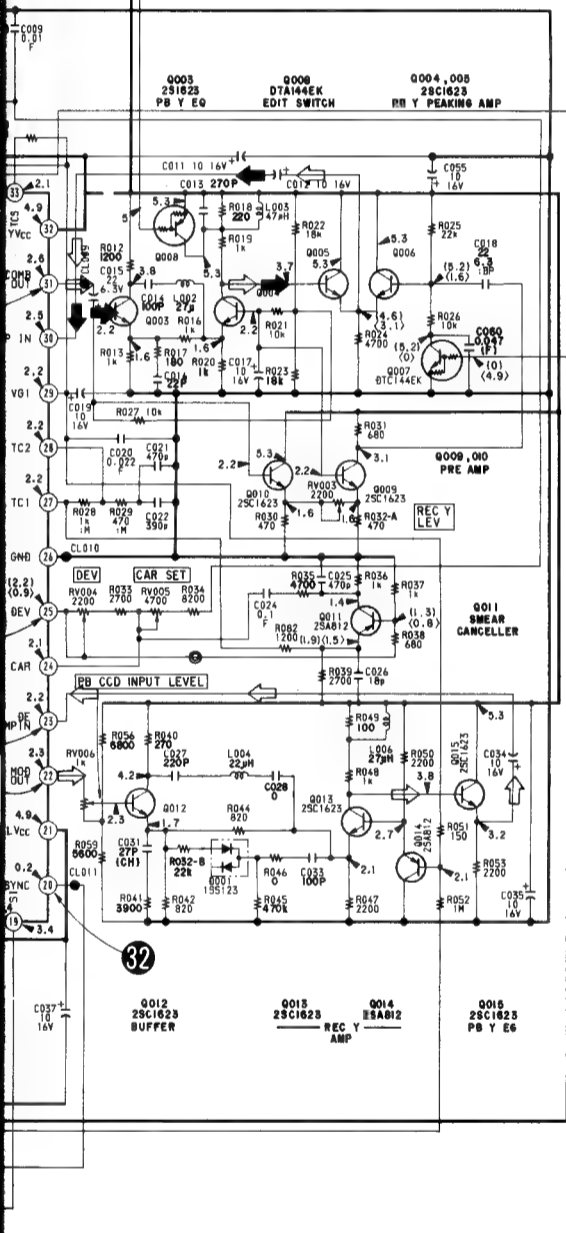
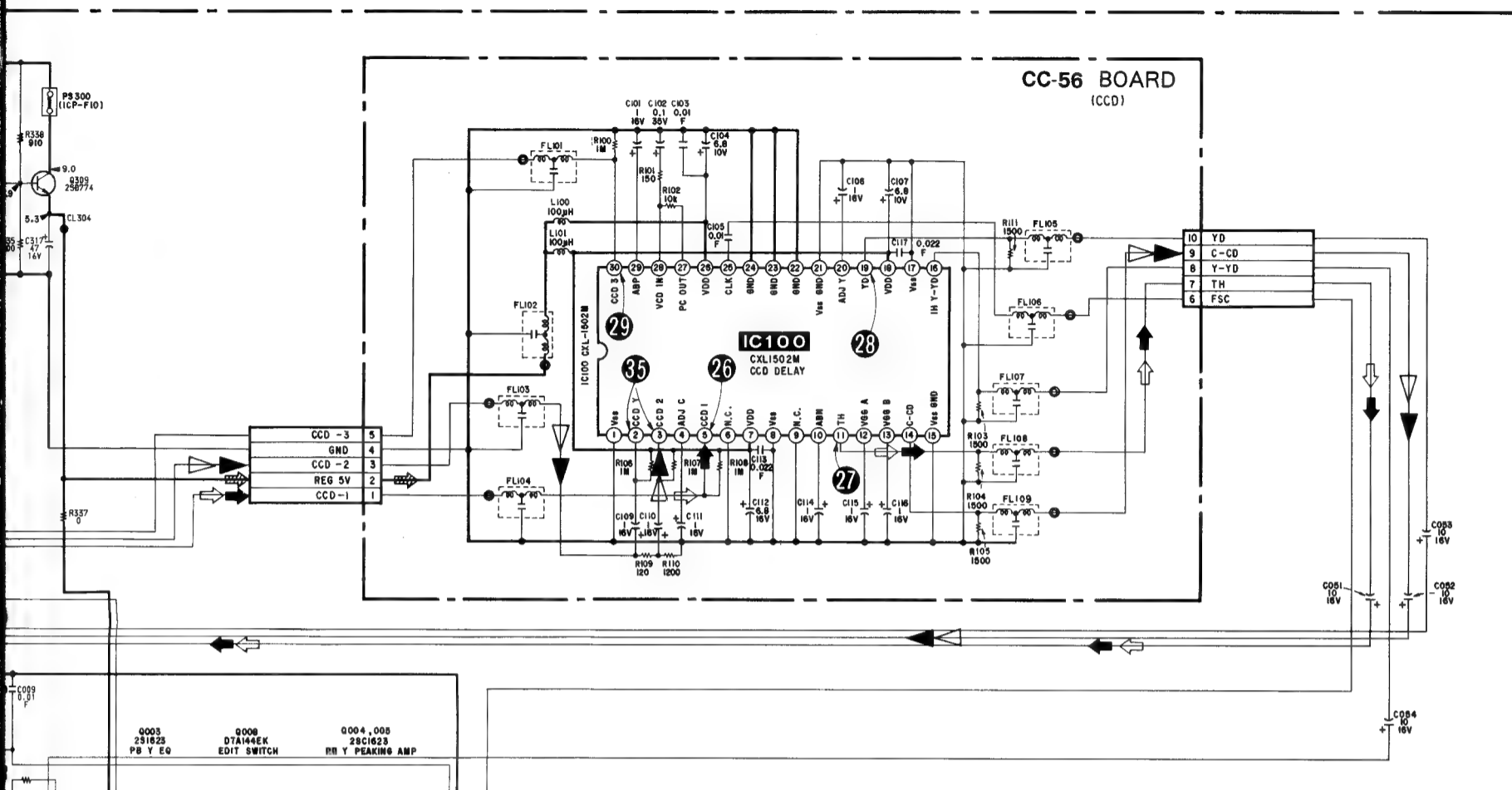
VI-101 BOARD (CONDUCTOR SIDE)



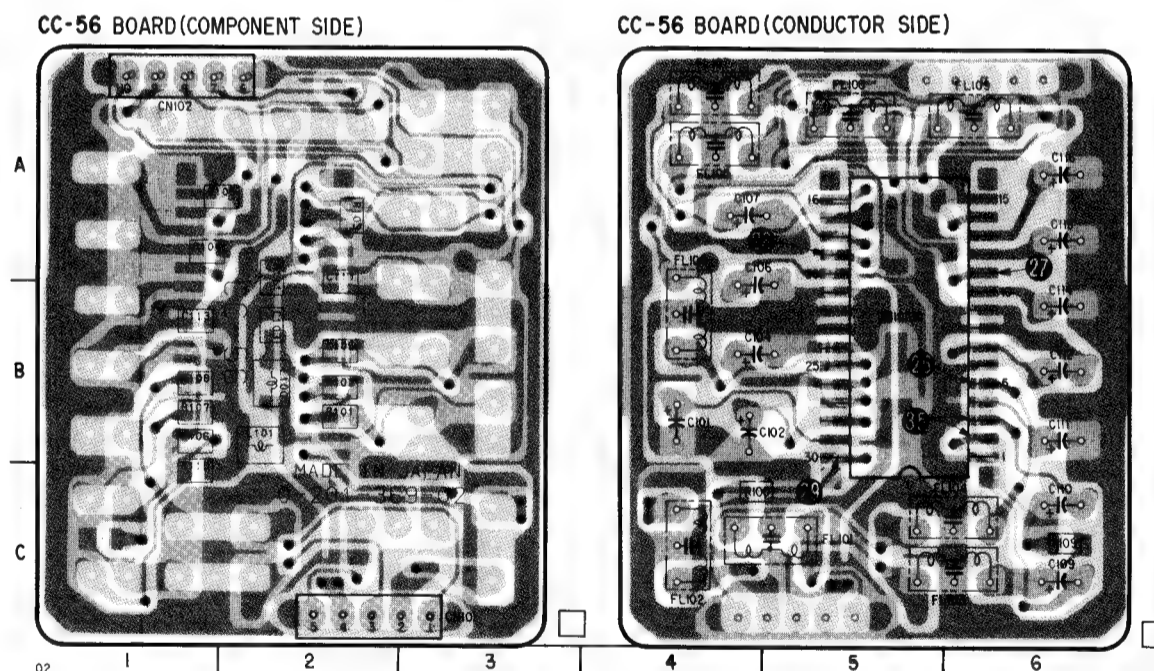
—Ref. No. VI-101, CC-56 BOARDS : 1,000 Series—











CC-56 (CCD) PRINTED WIRING BOARD
 —Ref. No. CC-56 BOARD : 1,000 Series—



- For printed wiring boards :







-  : indicates a lead wire mounted on the component side.
-  : Through hole..
-  : Pattern from the side which enables seeing.
-  : Pattern of the rear side.
- Circled numbers refer to waveforms.

Note :

Conductor side : Parts on the conductor side being seen from the conductor are stated.

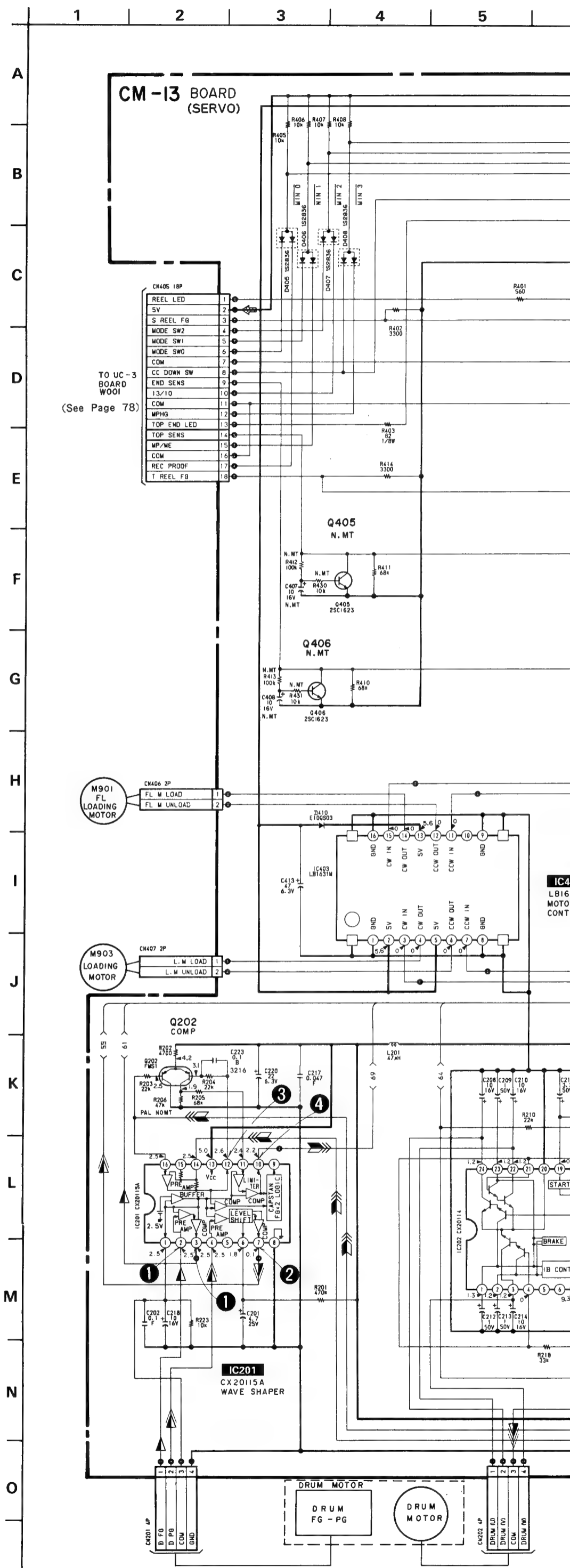
Component side : Parts on the component side being seen from the component are stated.

- Signal path

 : REC Y Signal
 : PB Y Signal
 : REC CHROMA Signal
 : PB CHROMA Signal
 : REC Y/CHROMA Signal
 : PB Y/CHROMA Signal

When indicating parts by reference number, please include the board name.

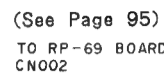
VI-101 BOARD (VIDEO)

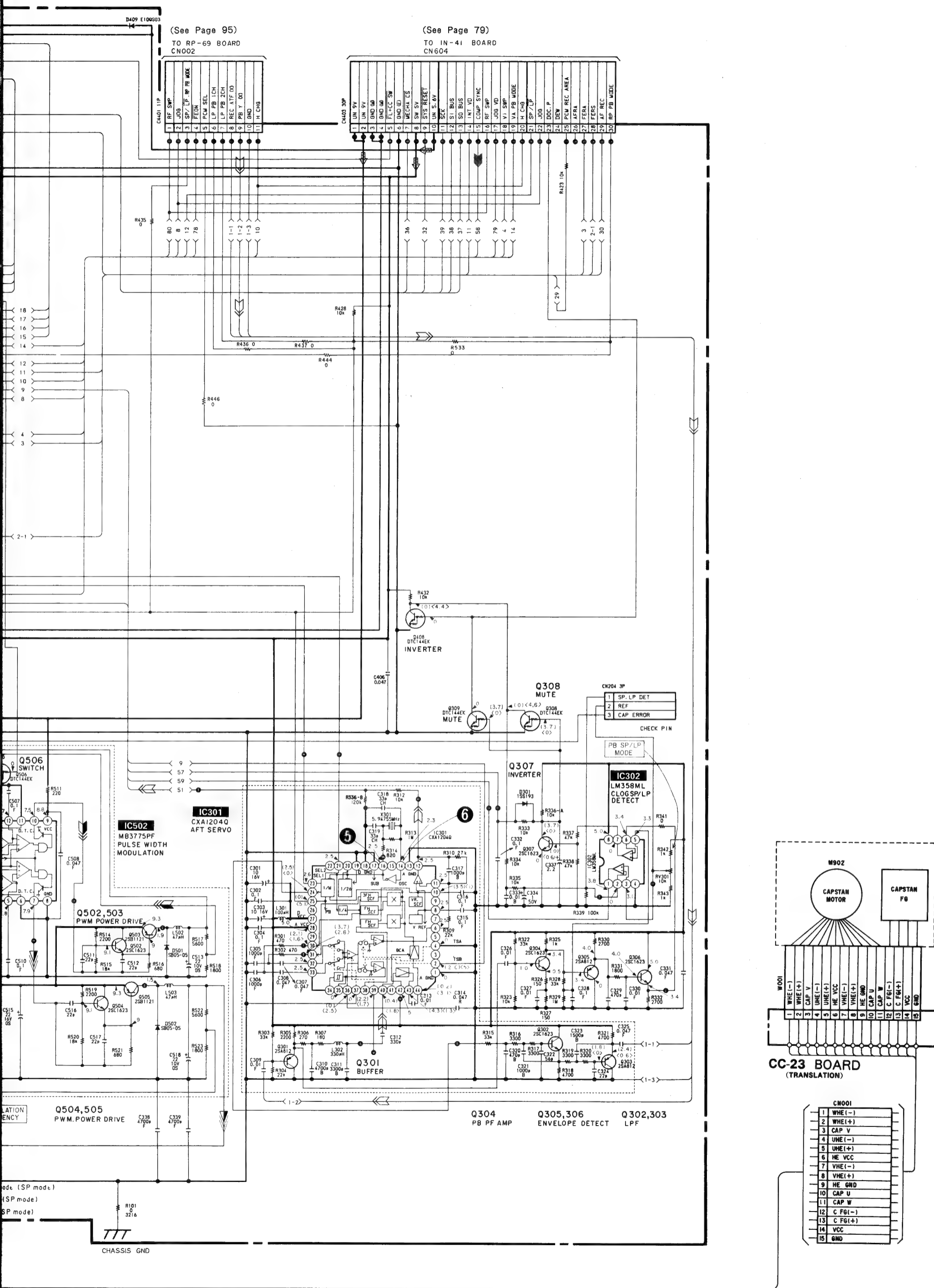


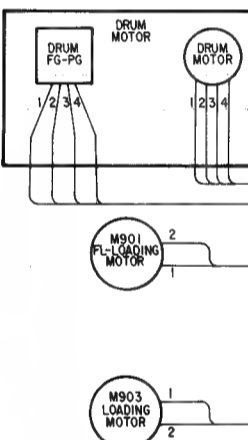
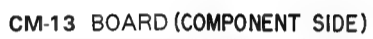
• Signal path

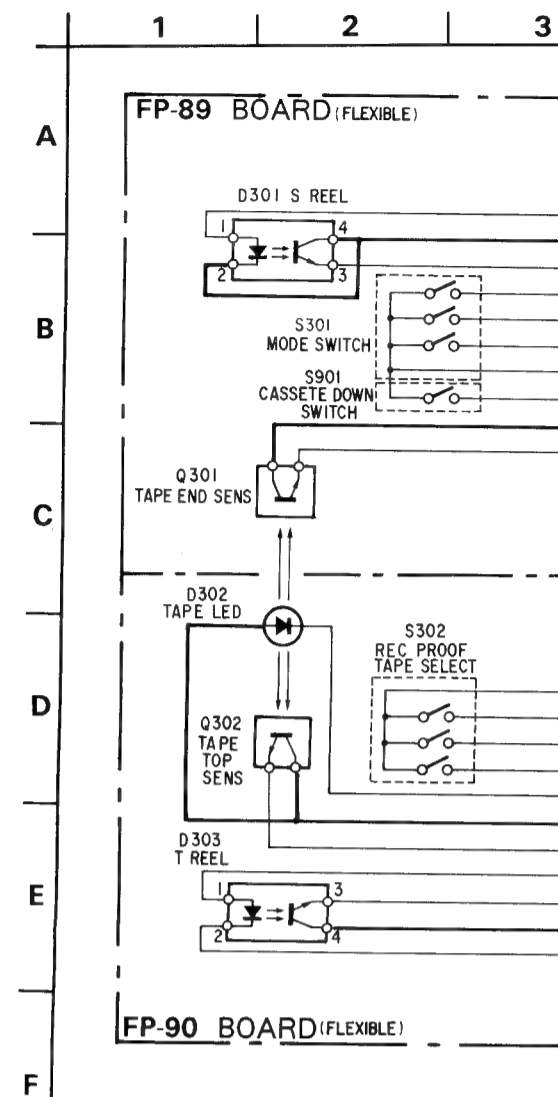
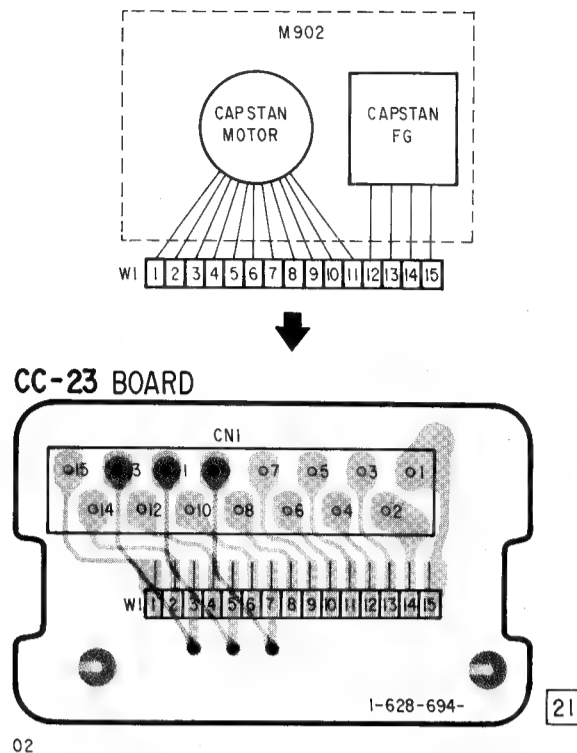
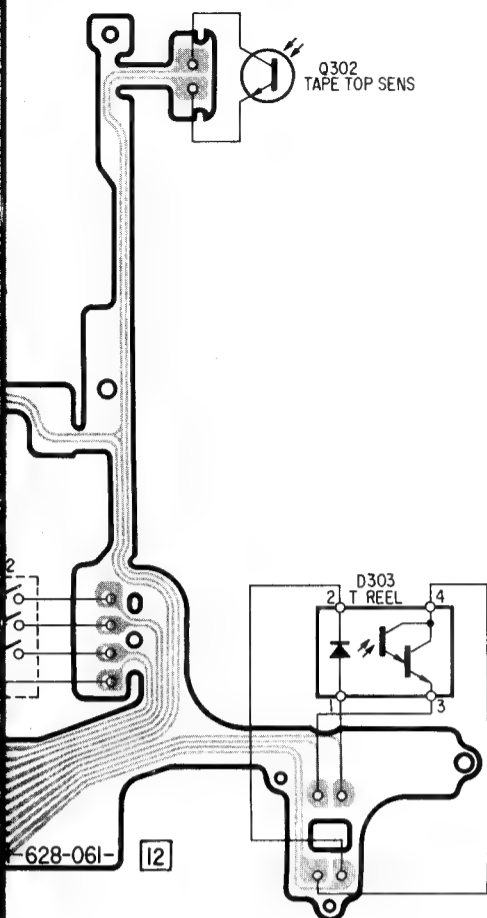
| | REC | REC/PB | PB |
|---------------------------------|------|--------|----|
| Drum speed servo | | ▶ | |
| Drum phase servo | | ▶▶ | |
| Drum servo (speed and phase) | | ▶▶▶ | |
| Capstan phase servo | | | ▶▶ |
| Capstan servo (speed and phase) | | ▶▶▶ | |
| Ref. signal | ▶▶▶▶ | | |

When indicating parts by reference number, please include the board name.

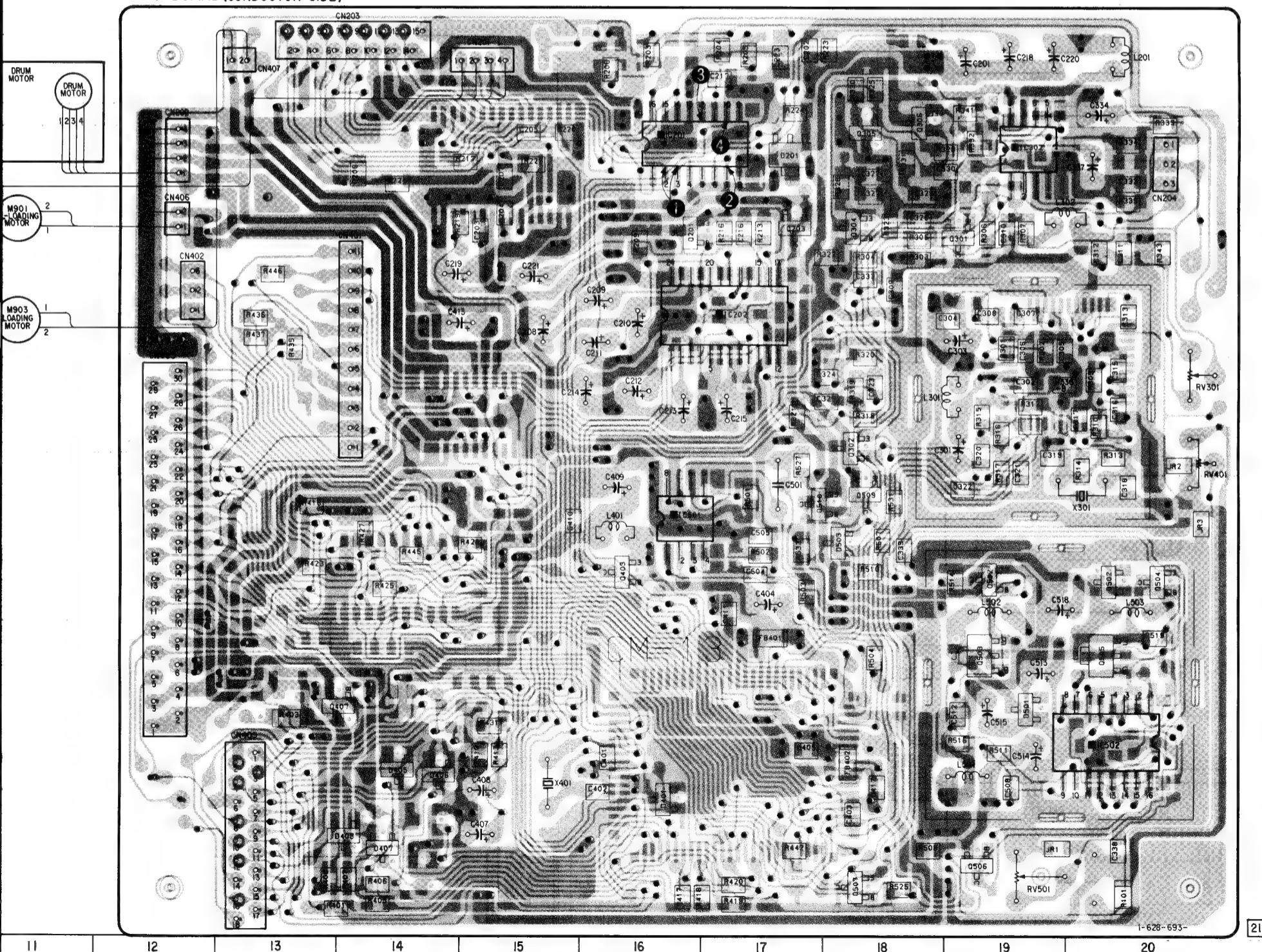


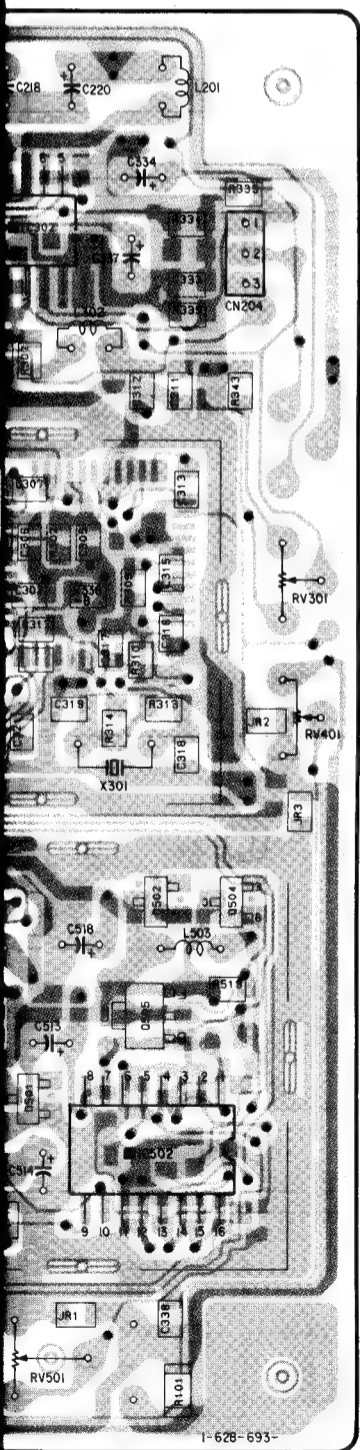
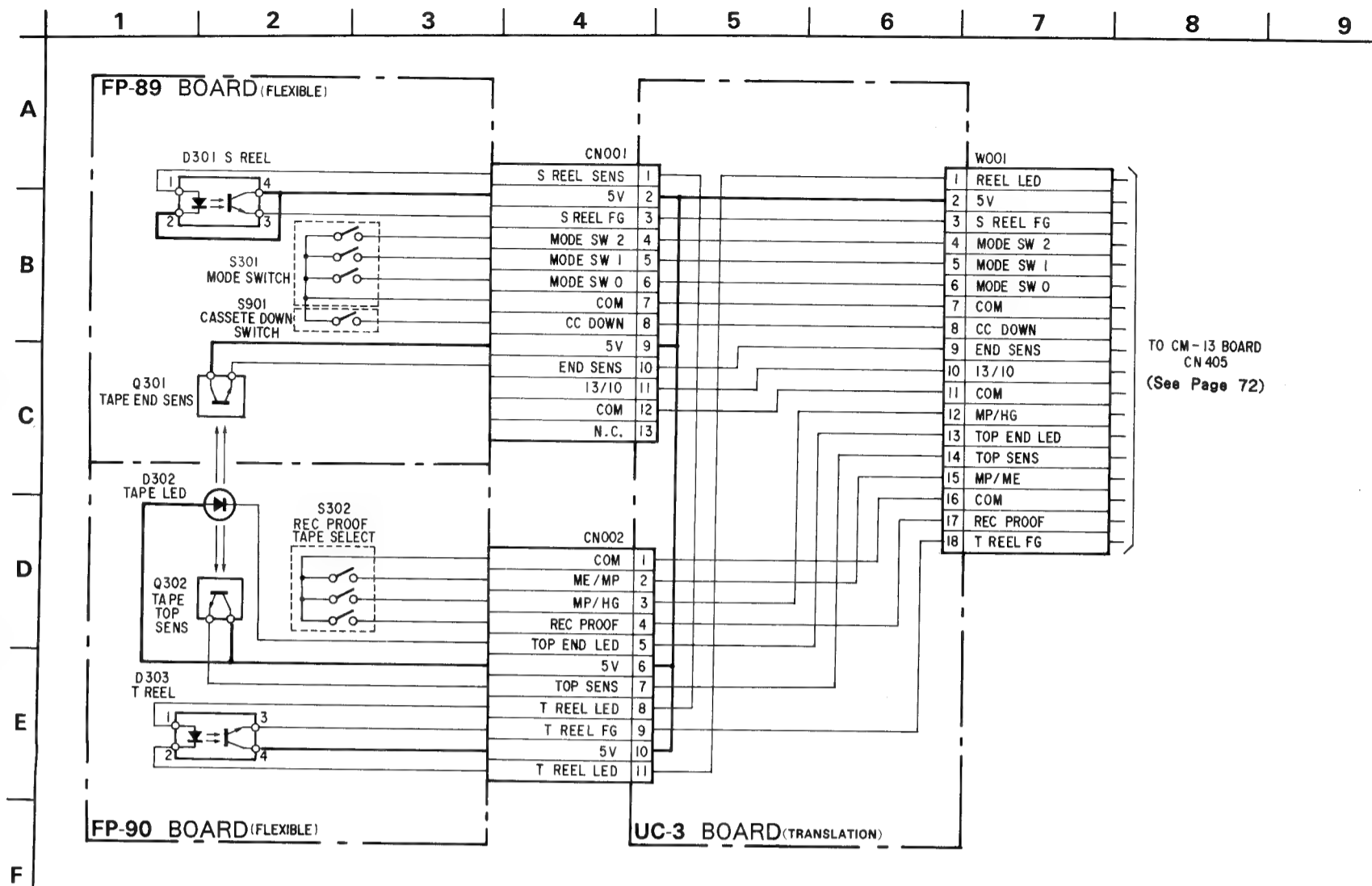






CM-13 BOARD (CONDUCTOR SIDE)





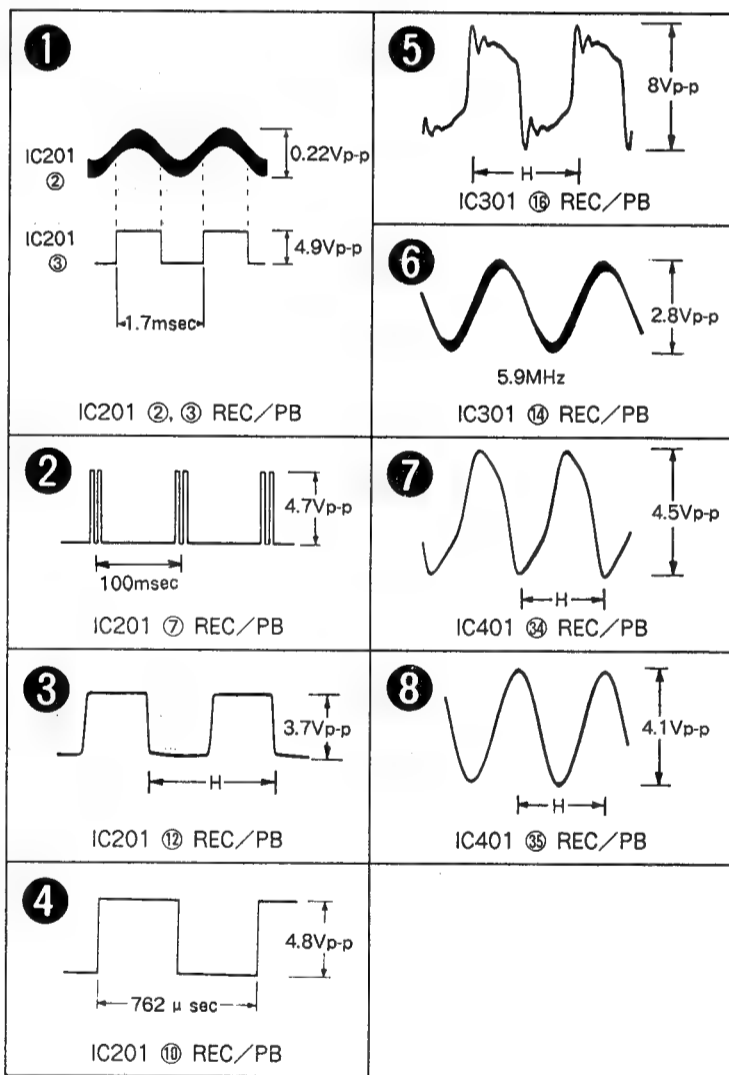
CM-13 Board

D201 B-17
D301 B-3
D401 G-16
D405 G-14
D406 G-14
D407 G-14
D408 G-14
D409 F-8
D410 E-9
D501 F-19
D502 E-20
D503 E-18

IC201 B-16
IC202 C-17
IC203 B-7
IC301 C-2
IC302 B-19
IC401 G-5
IC403 D-7
IC501 E-16
IC502 G-20

Q201 B-16
Q202 A-6
Q203 B-17
Q301 B-19
Q302 D-18
Q303 D-4
Q304 B-18
Q305 B-18
Q306 A-18
Q307 B-3
Q308 B-2
Q309 C-4
Q403 E-16
Q404 E-8
Q405 F-7
Q406 F-7
Q407 F-14
Q408 E-7
Q409 G-14
Q410 G-14
Q501 G-1
Q502 E-19
Q503 F-19
Q504 E-20
Q505 F-20
Q506 G-19
Q507 G-18
Q508 G-3
Q509 E-18
Q510 E-17

CM-13 BOARD



For printed wiring boards :

- : indicates a lead wire mounted on the componet side.
- : Through hole..
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.
- Circled numbers refer to waveforms.

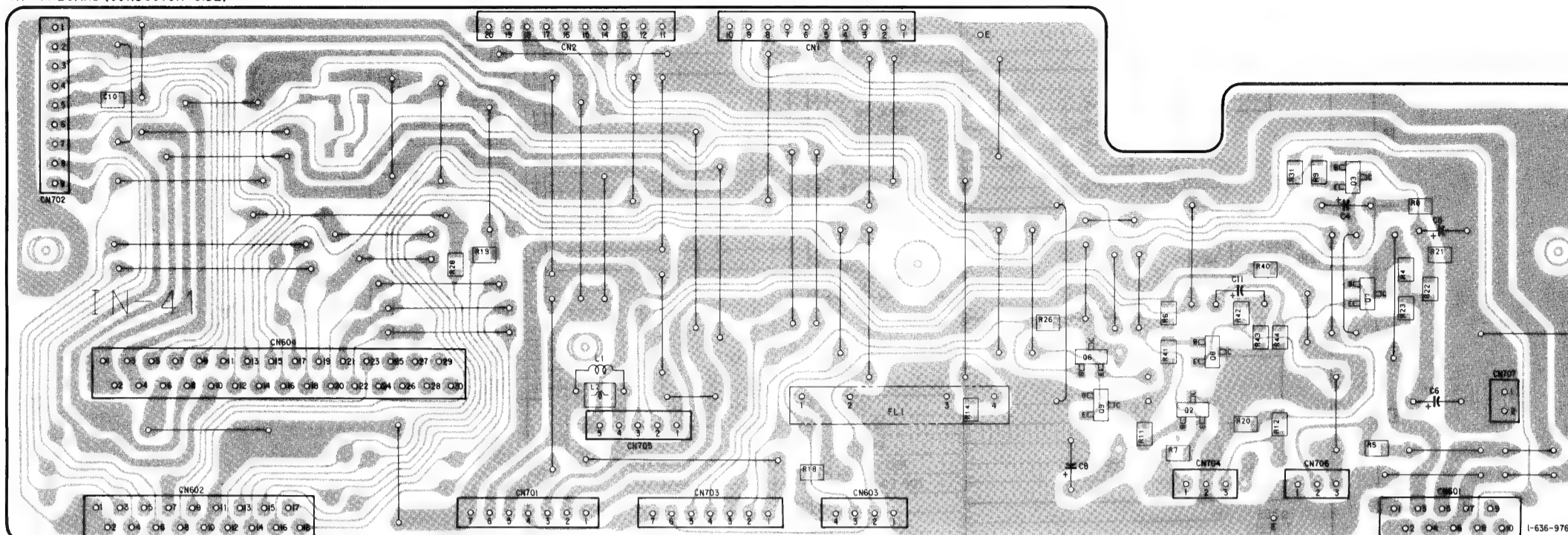
Note :



Conductor side : Parts on the conductor side being seen from the conductor are stated.

Component side : Parts on the component side being seen from the component are stated.

When indicating parts by reference number, please include the board name.

—Ref. No. IN-41 BOARD : 7,000 Series, FR-38 BOARD : 6,000 Series—

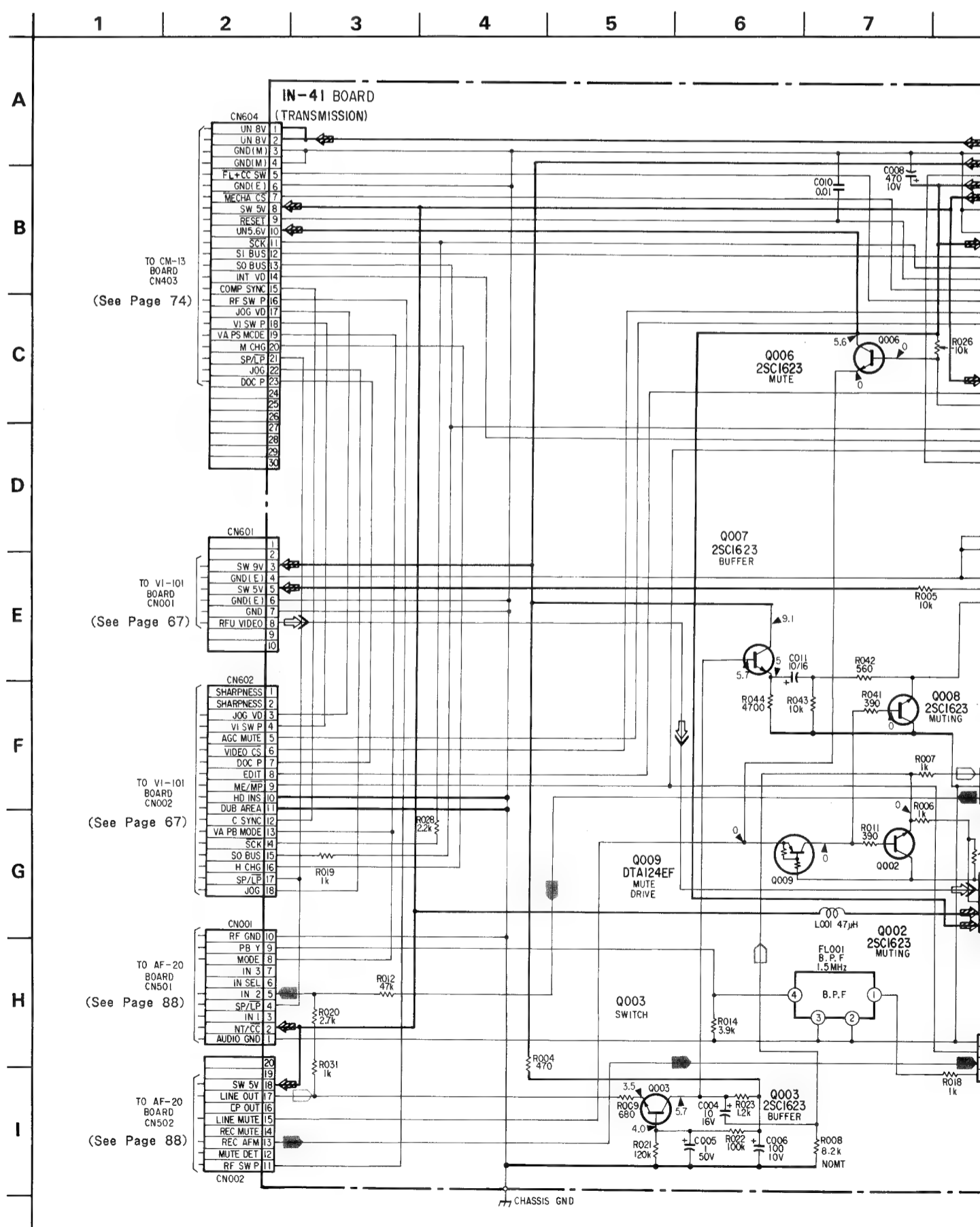


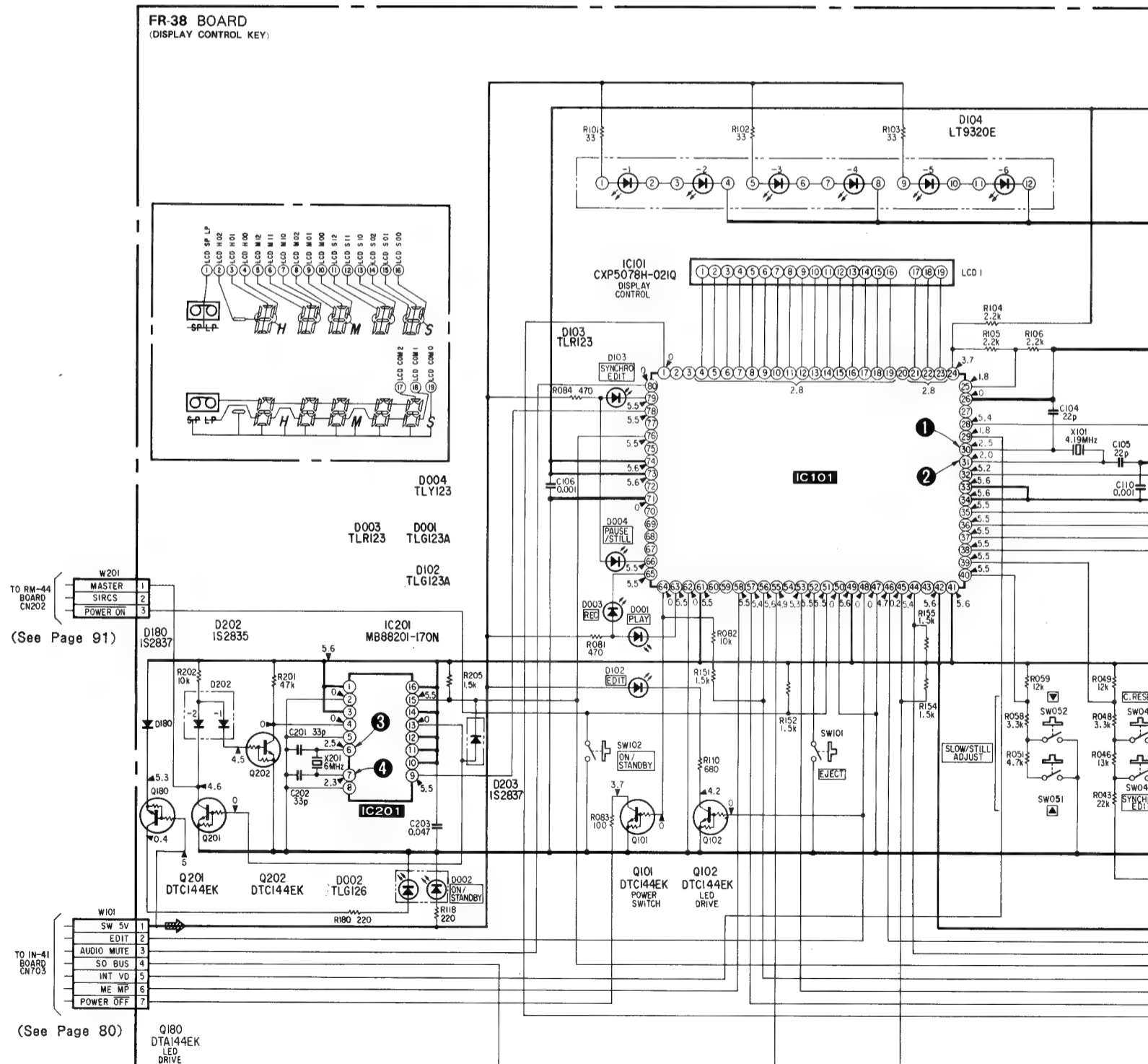
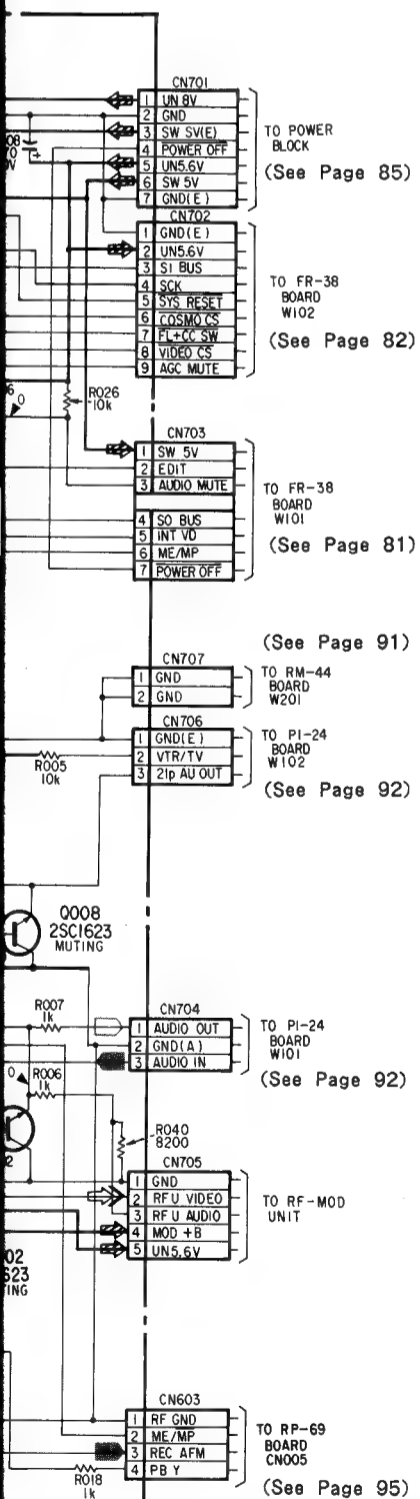
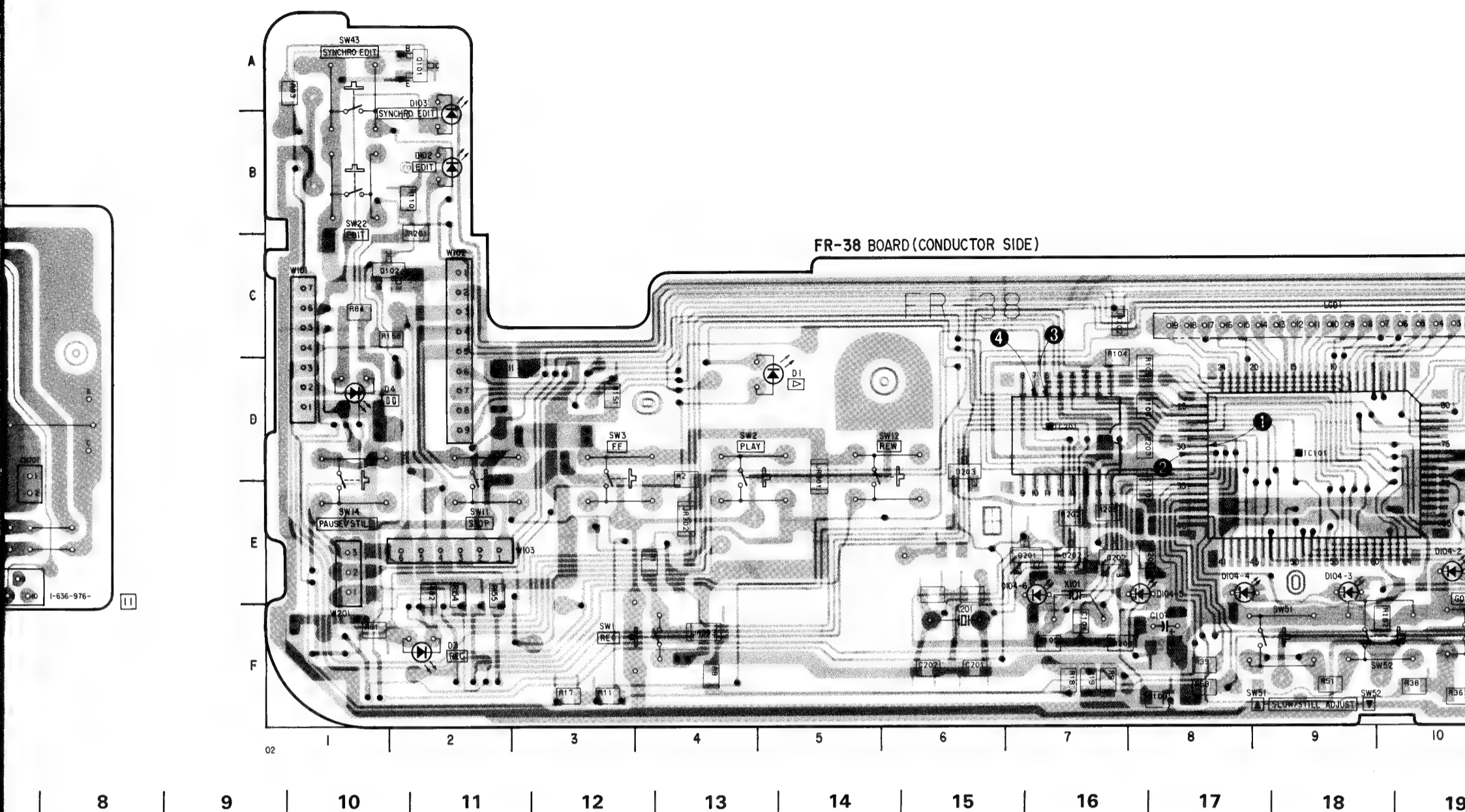
- ○ : indicates a lead wire mounted on the component side.
- ● : Through hole..
-  : Pattern from the side which enables seeing.
-  : Pattern of the rear side.
- ○ : Circled numbers refer to waveforms.

Component side : Parts on the component side being seen from the component are stated

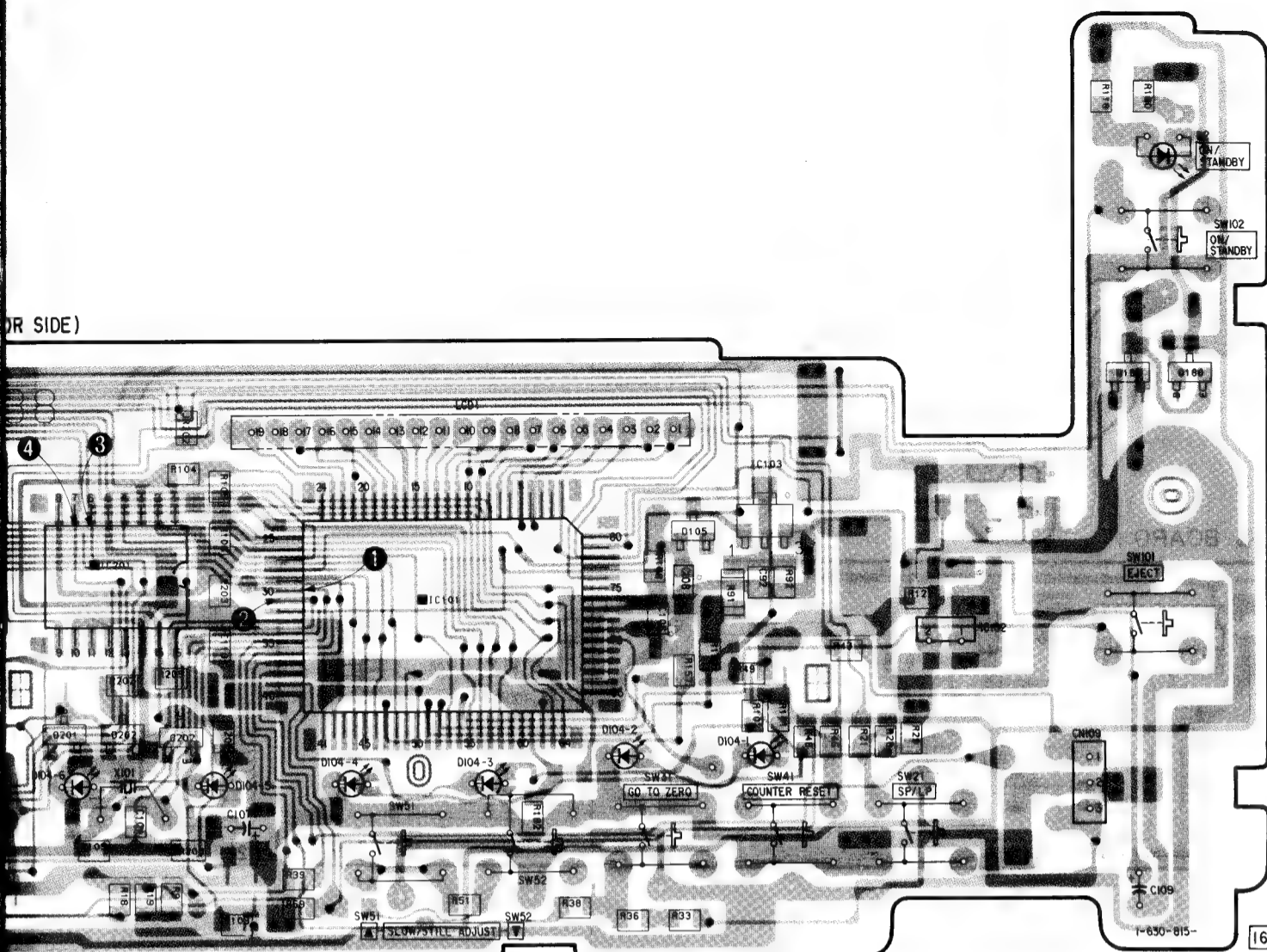
When indicating parts by reference number, please include the board name.

—Ref. No. IN-41 BOARD : 7.000 Series. FR-38 BOARD : 6.000 Series—





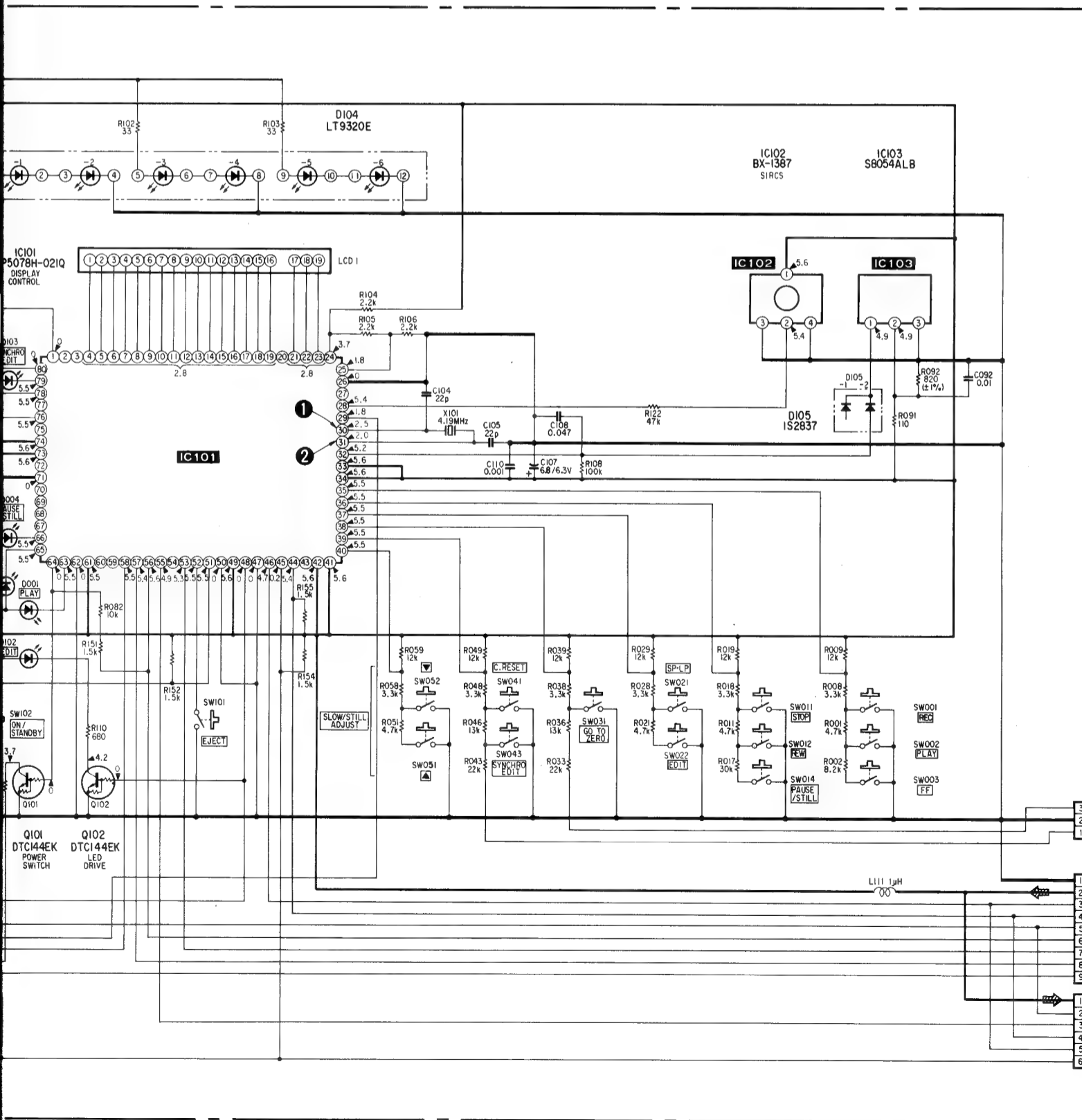
OR SIDE)



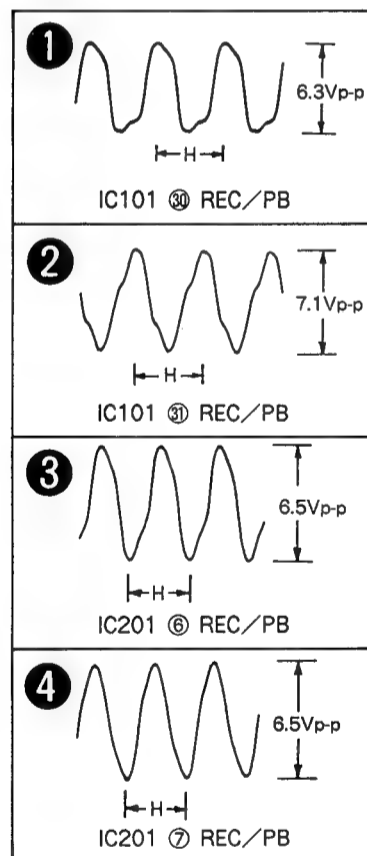
FR-38 Board

| | |
|-------|------|
| D001 | D-5 |
| D002 | B-13 |
| D003 | F-2 |
| D004 | D-1 |
| D102 | B-2 |
| D103 | A-2 |
| D105 | D-11 |
| D106 | D-12 |
| D107 | E-6 |
| D180 | C-13 |
| D202 | E-7 |
| D203 | D-6 |
| IC101 | D-9 |
| IC102 | D-12 |
| IC103 | D-11 |
| IC201 | D-7 |
| Q101 | A-2 |
| Q102 | C-1 |
| Q103 | D-13 |
| Q104 | D-12 |
| Q180 | C-18 |
| Q201 | E-7 |
| Q202 | E-7 |
| Q401 | E-4 |

16 17 18 19 20 21 22 23 24 25



FR-38 BOARD

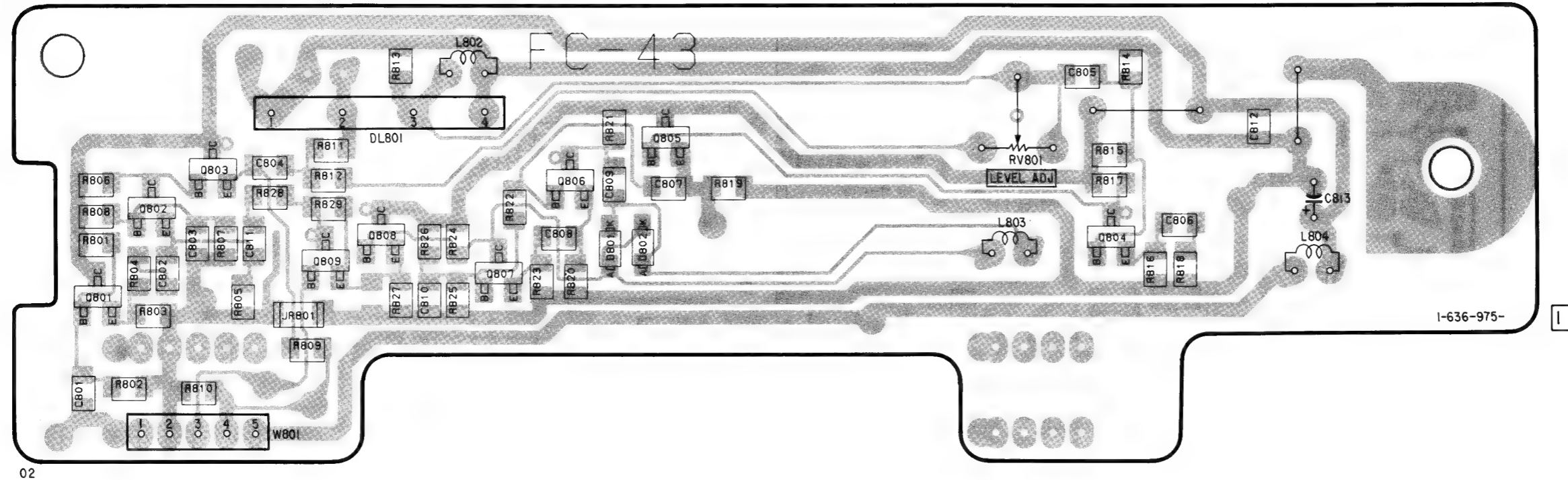


DISPLAY/CONTROL DISPLAY/CONTROL

FC-43 (FEED BACK COMB) PRINTED WIRING BOARDS

—Ref. No. FC-43 BOARDS : 4,000 Series—

FC-43 BOARD (CONDUCTOR SIDE)



02

FC-43 (FEED BACK COMB) PRINTED WIRING BOARDS

—Ref. No. FC-43 BOARDS : 4,000 Series—

1

A

B

C

D

E

F

G

H

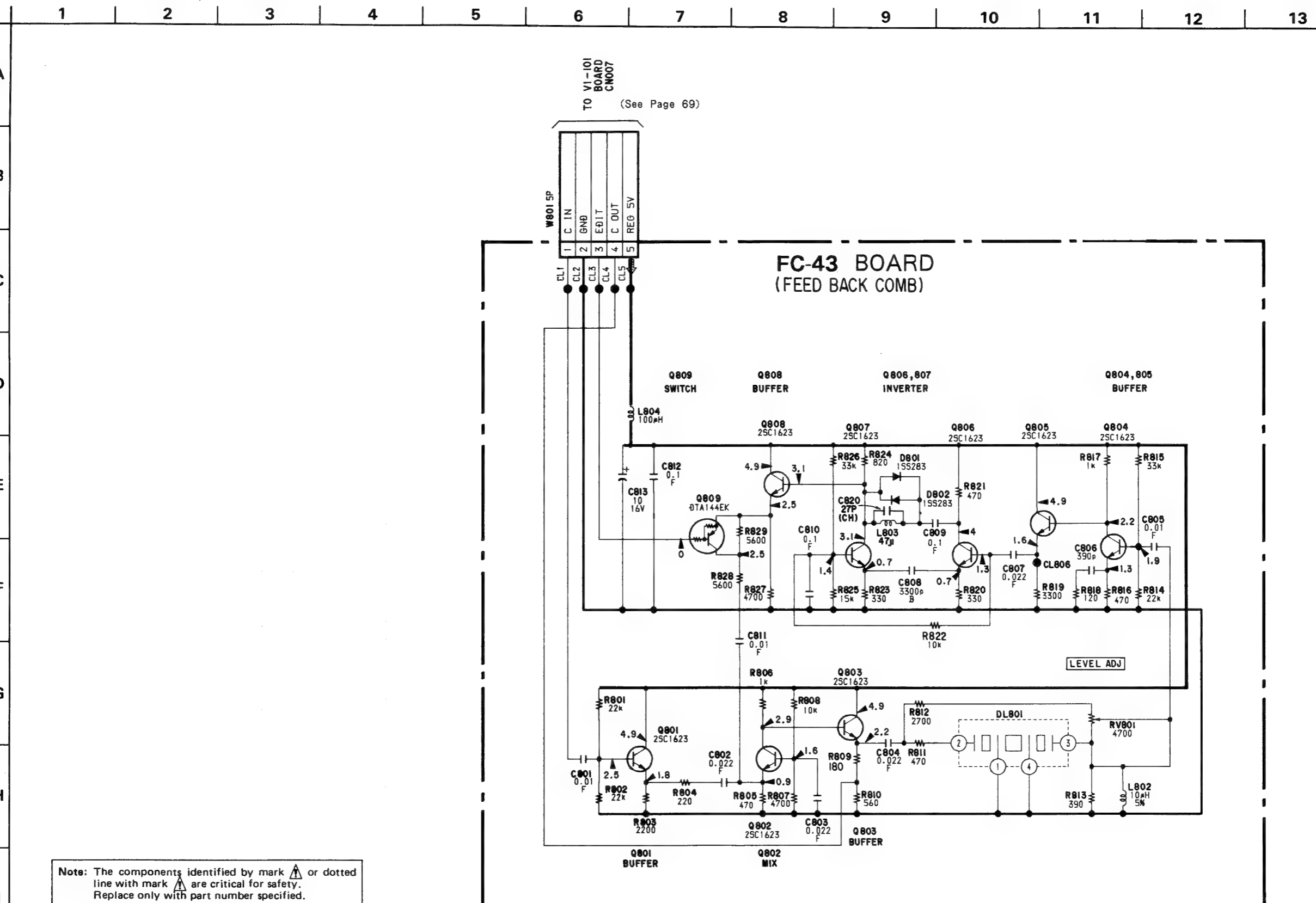
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Note:

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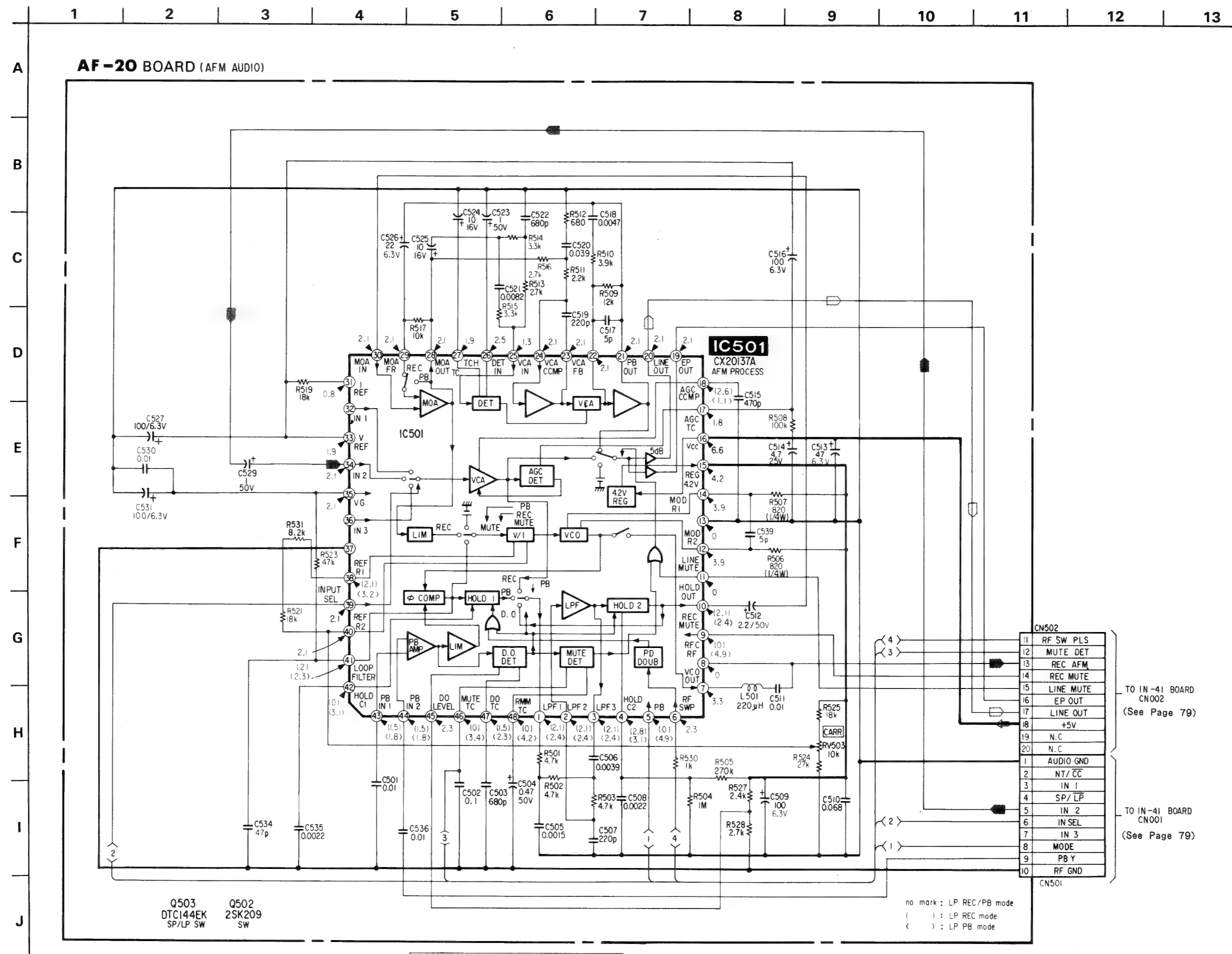
FC-43 (FEED BACK COMB) SCHEMATIC DIAGRAMS

—Ref. No. FC-43 BOARD : 4,000 Series—

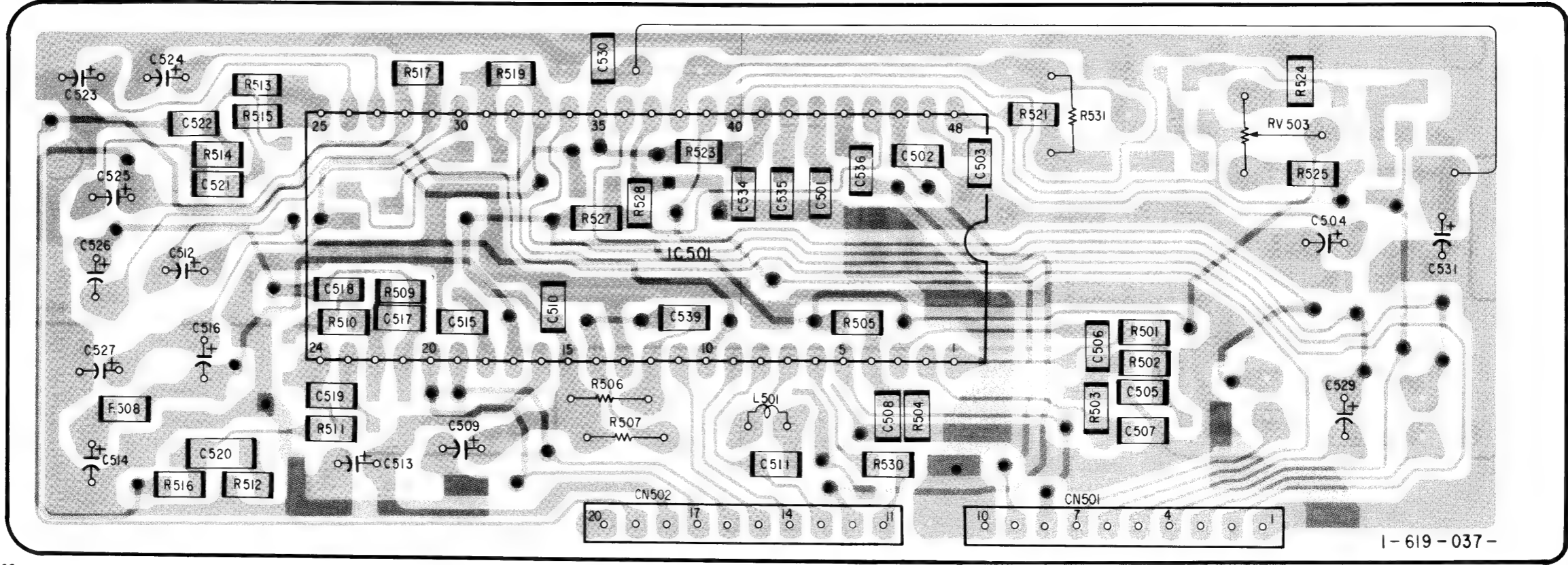


AF-20 (AFM AUDIO) SCHEMATIC DIAGRAM

—Ref. No. AF-20 BOARD : 5,000 Series—



AF-20 BOARD (CONDUCTOR SIDE)



02

13

TO IN-41 BOARD
CN002
(See Page 79)

TO IN-41 BOARD
CN001
(See Page 79)

- Signal path
- ▬ : REC AUDIO Signal
- ▬ : PB AUDIO Signal

When indicating parts by reference number, please include the board name.

- For printed wiring boards :
- : indicates a lead wire mounted on the componet side.
 - : Through hole..
 - ▬ : Pattern from the side which enables seeing.
 - ▬ : Pattern of the rear side.

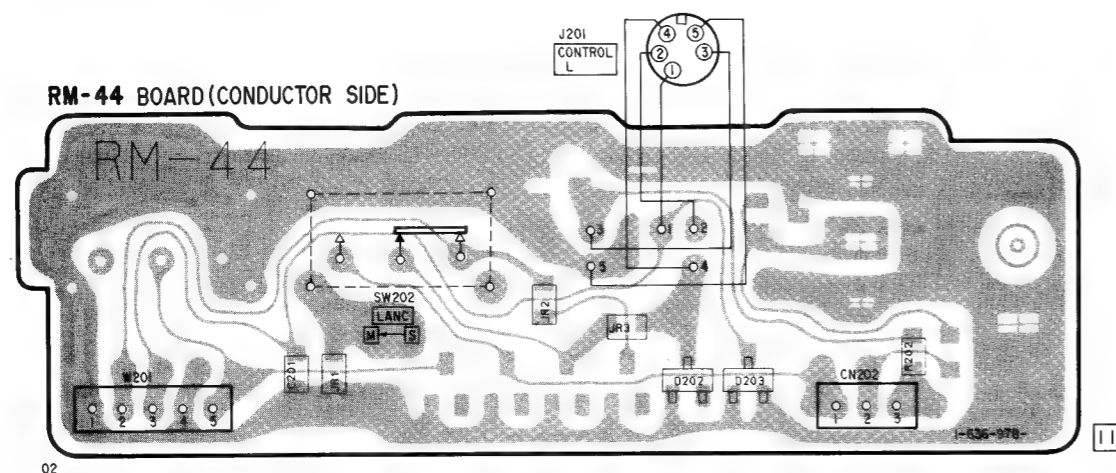
Note :

Conductor side : Parts on the conductor side being seen from the conductor are stated.

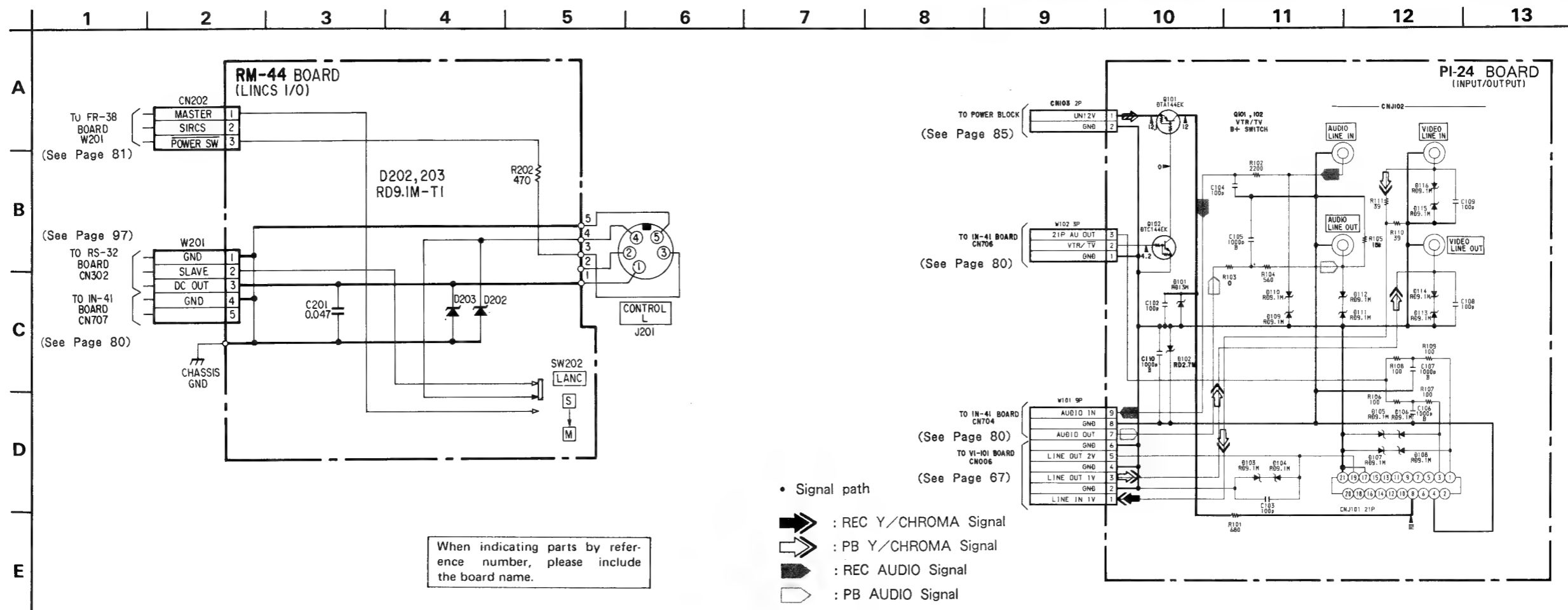
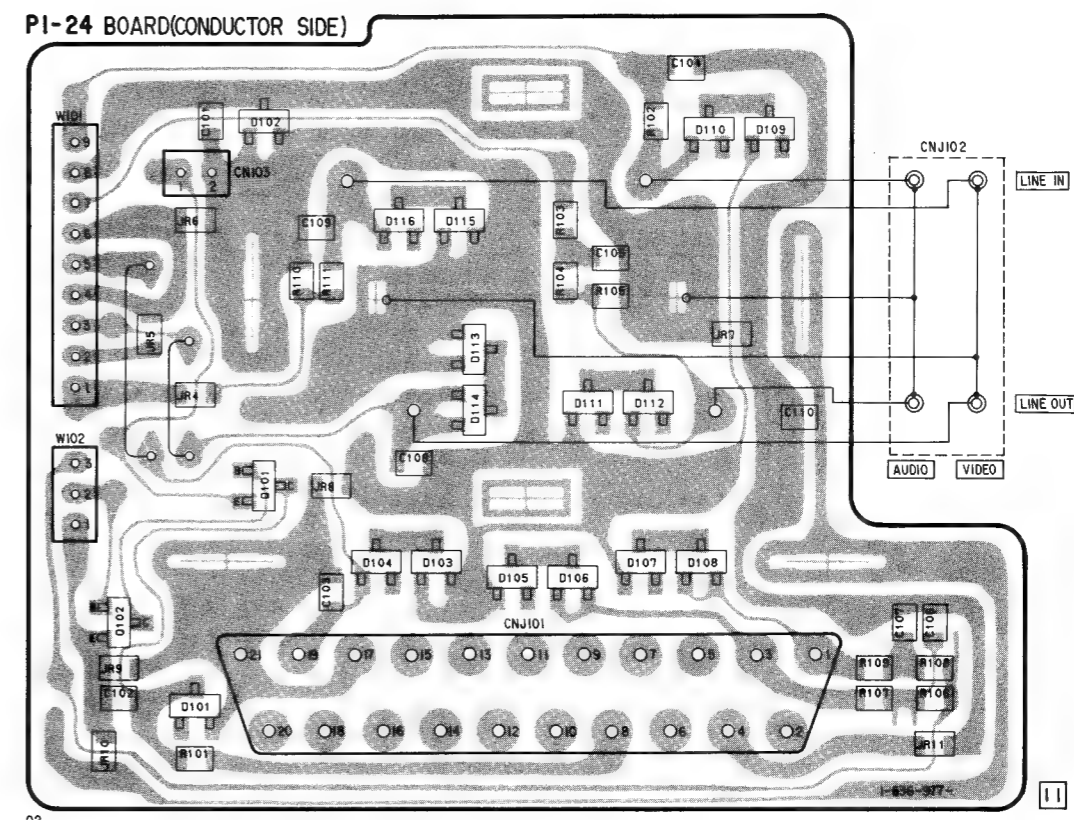
Component side : Parts on the component side being seen from the component are stated.

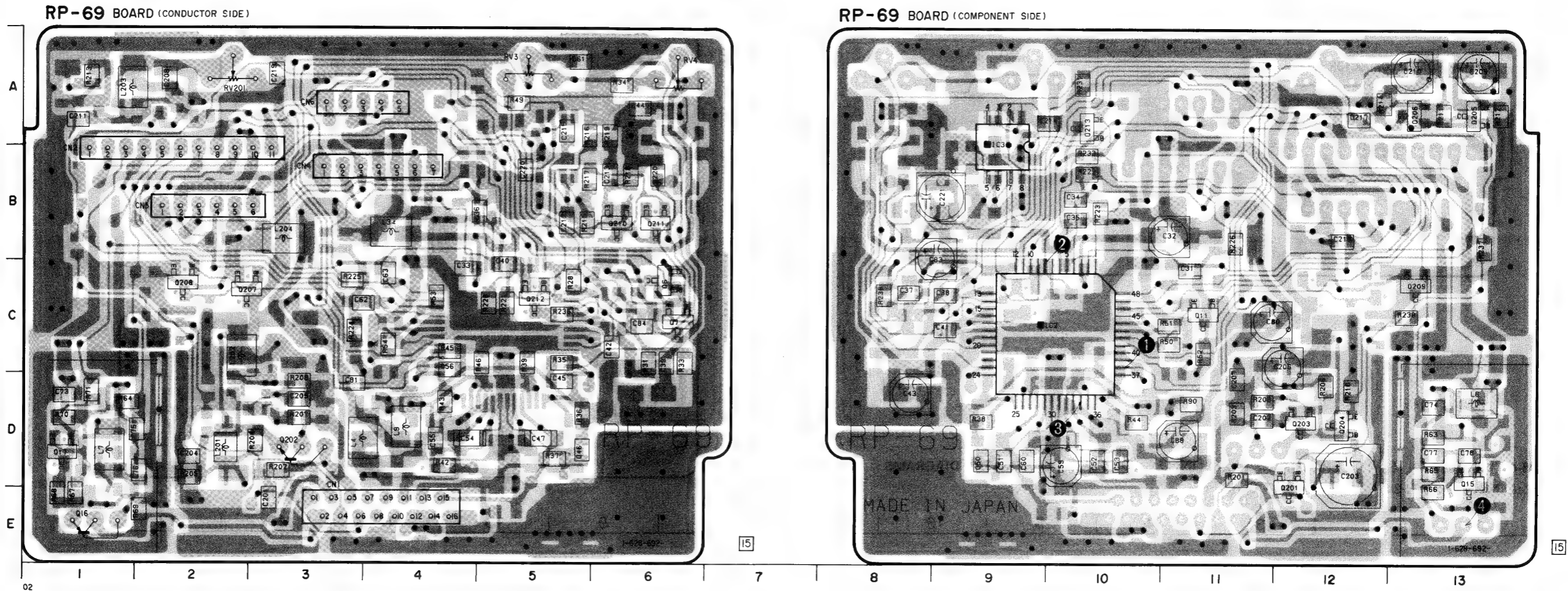
When indicating parts by reference number, please include the board name.

—Ref. No. RM-44, PI-24 BOARDS : 4,000 Series—



—Ref. No. RM-44, PI-24 BOARDS : 4,000 Series—





For printed wiring boards :

- — : indicates a lead wire mounted on the componet side.
- : Through hole..
- ▨ : Pattern from the side which enables seeing.
- ▩ : Pattern of the rear side.
- Circled numbers refer to waveforms.

Note :

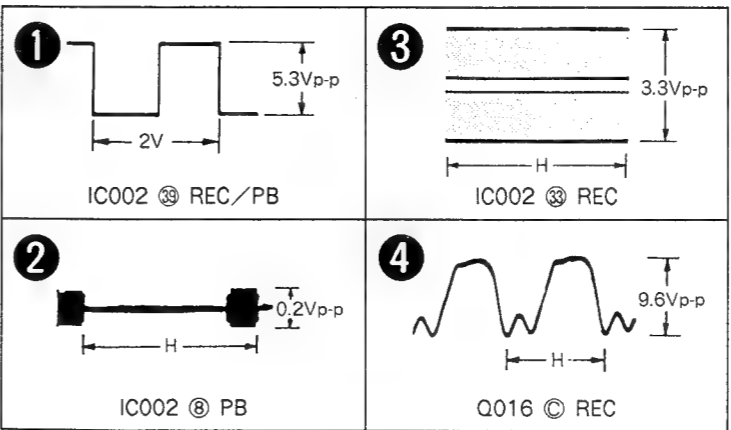
Conductor side : Parts on the conductor side being seen from the conductor are stated.
Component side : Parts on the component side being seen from the component are stated.

When indicating parts by reference number, please include the board name.

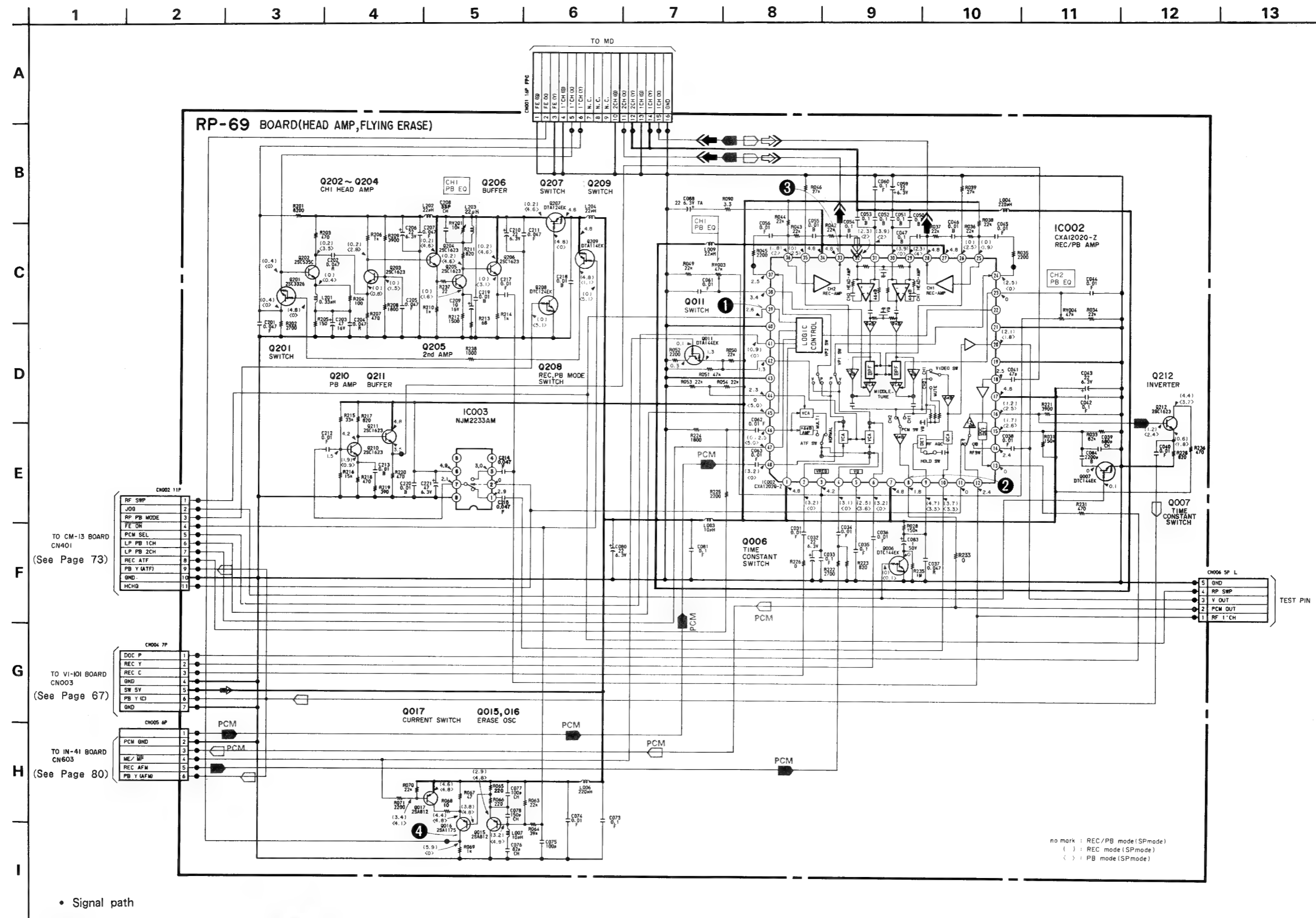
RP-69 Board

| | |
|-------|------|
| IC002 | C-10 |
| IC003 | A-9 |
| Q006 | C-6 |
| Q007 | C-6 |
| Q011 | C-11 |
| Q015 | D-13 |
| Q016 | E-1 |
| Q017 | D-1 |
| Q027 | B-8 |
| Q028 | A-8 |
| Q201 | D-12 |
| Q202 | D-3 |
| Q203 | D-12 |
| Q204 | D-12 |
| Q205 | A-13 |
| Q206 | A-13 |
| Q207 | C-2 |
| Q208 | C-2 |
| Q209 | C-13 |
| Q210 | B-6 |
| Q211 | B-6 |
| Q212 | C-5 |
| Q213 | A-10 |

RP-69 BOARD

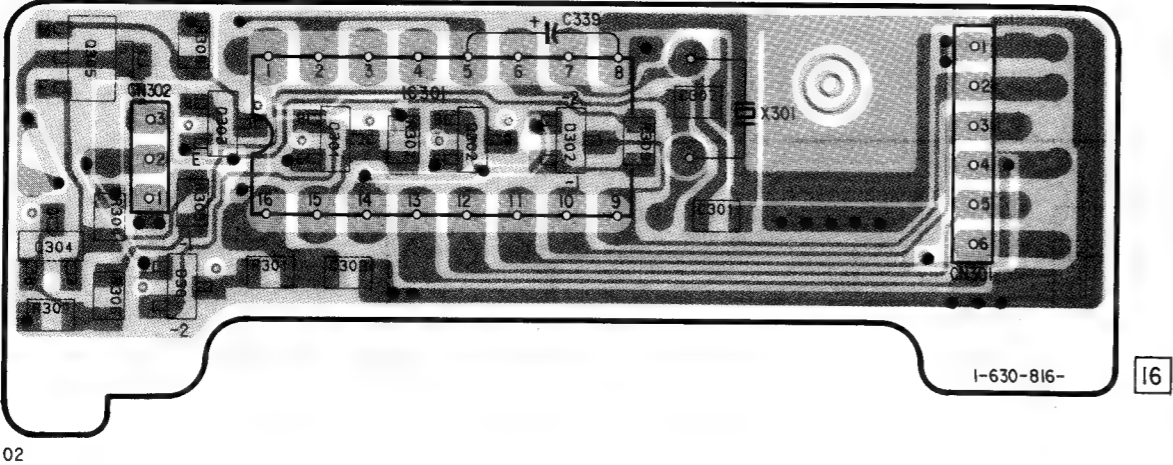


—Ref. No. RP-69 BOARD : 5,000 Series—



RS-32 (LINCS CONTROL) PRINTED WIRING BOARD
 -Ref. No. RS-32 BOARD : 5,000 Series -

RS-32 BOARD (CONDUCTOR SIDE)



For printed wiring boards :

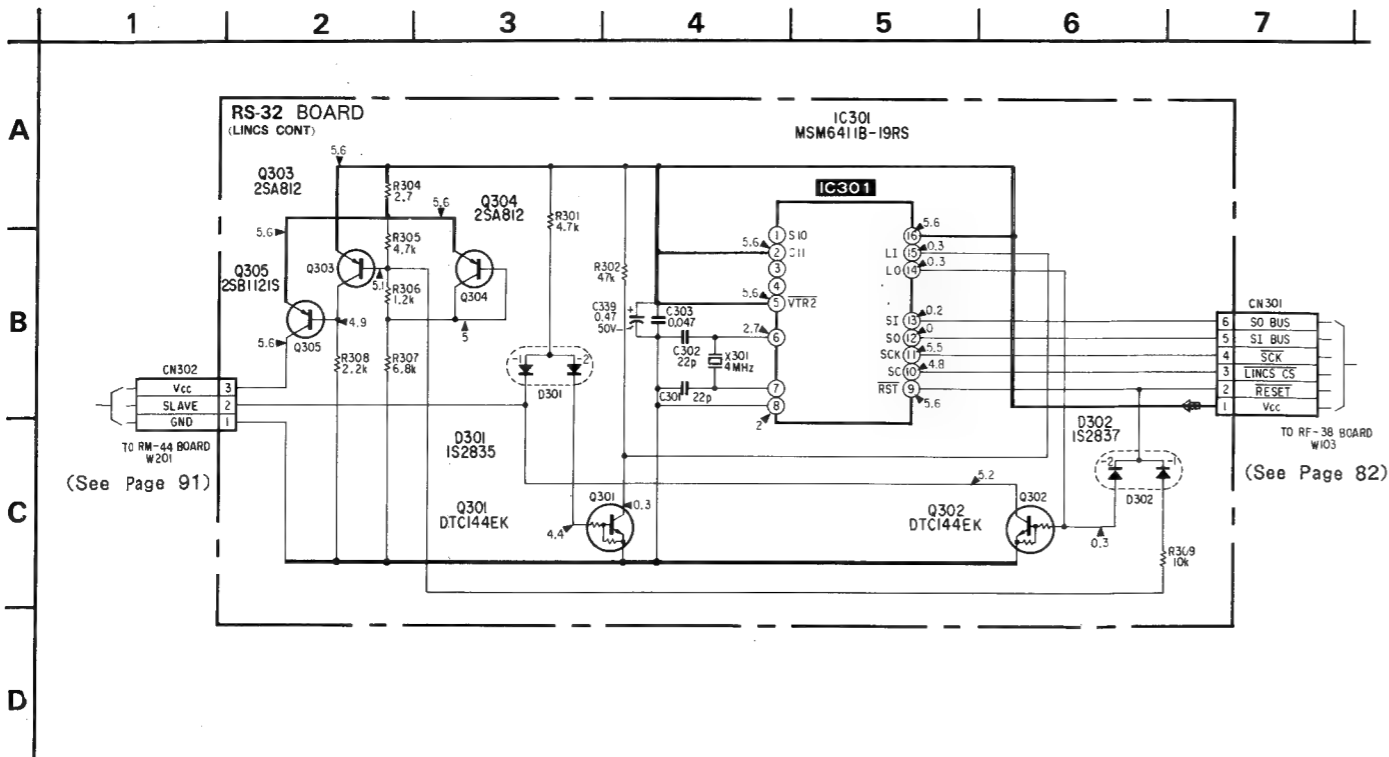
- — : indicates a lead wire mounted on the componet side.
- : Through hole..
- : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.

Note :

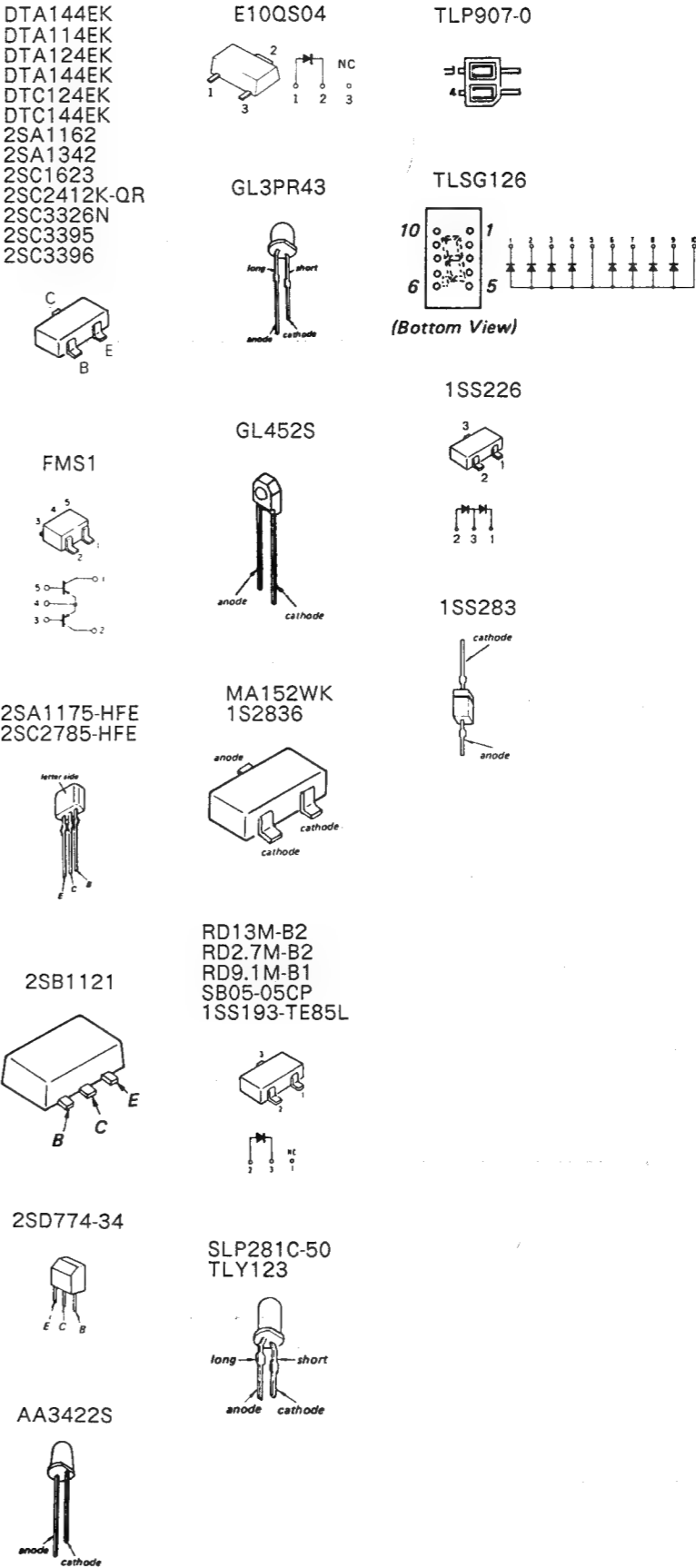
Conductor side : Parts on the conductor side being seen from the conductor are stated.
 Component side : Parts on the component side being seen from the component are stated.

When indicating parts by reference number, please include the board name.

RS-32 (LINCS CONTROL) SCHEMATIC DIAGRAM
 -Ref. No. RS-32 BOARD : 5,000 Series -



5-3. SEMICONDUCTORS



SECTION 6

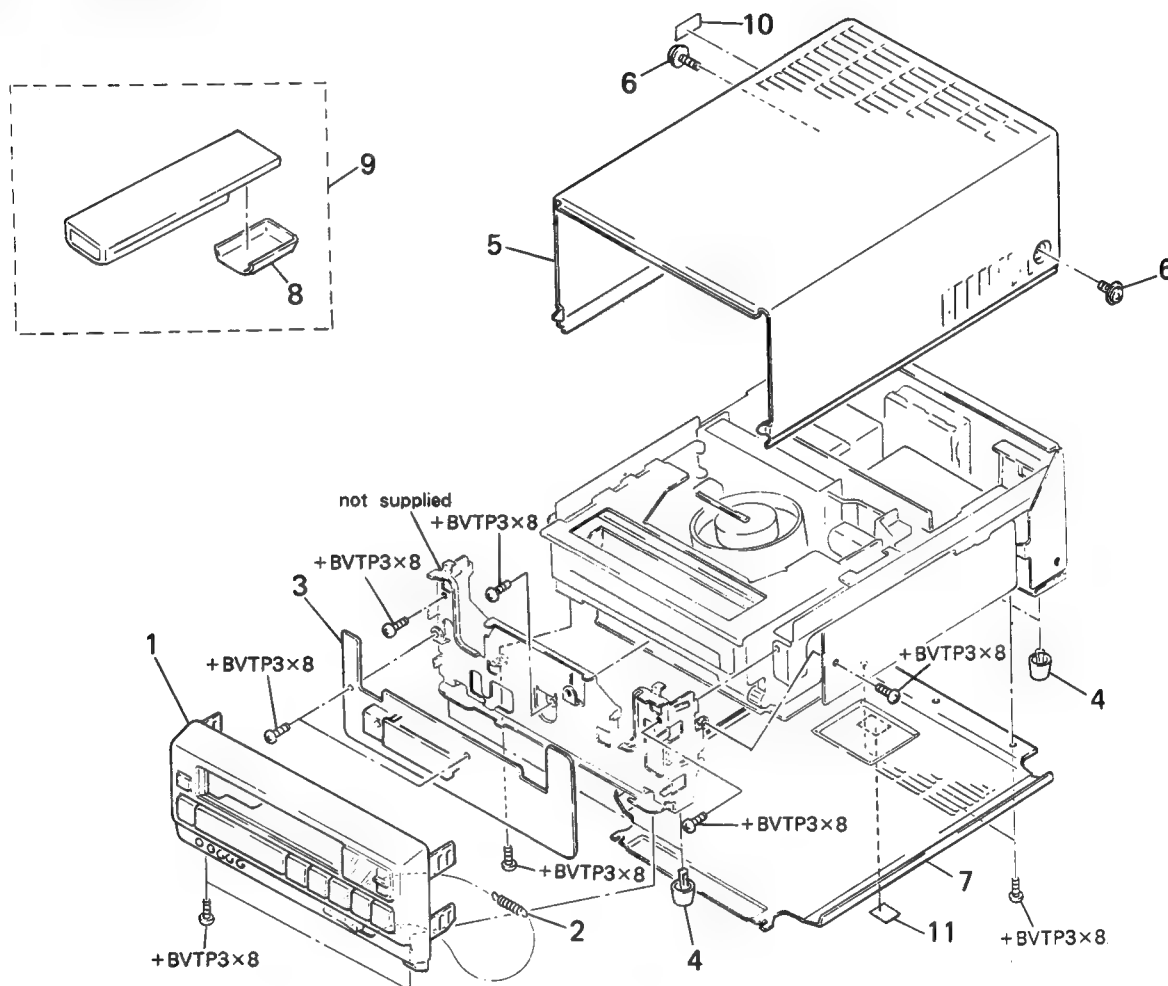
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with ■ collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some differences from the original one.

The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.

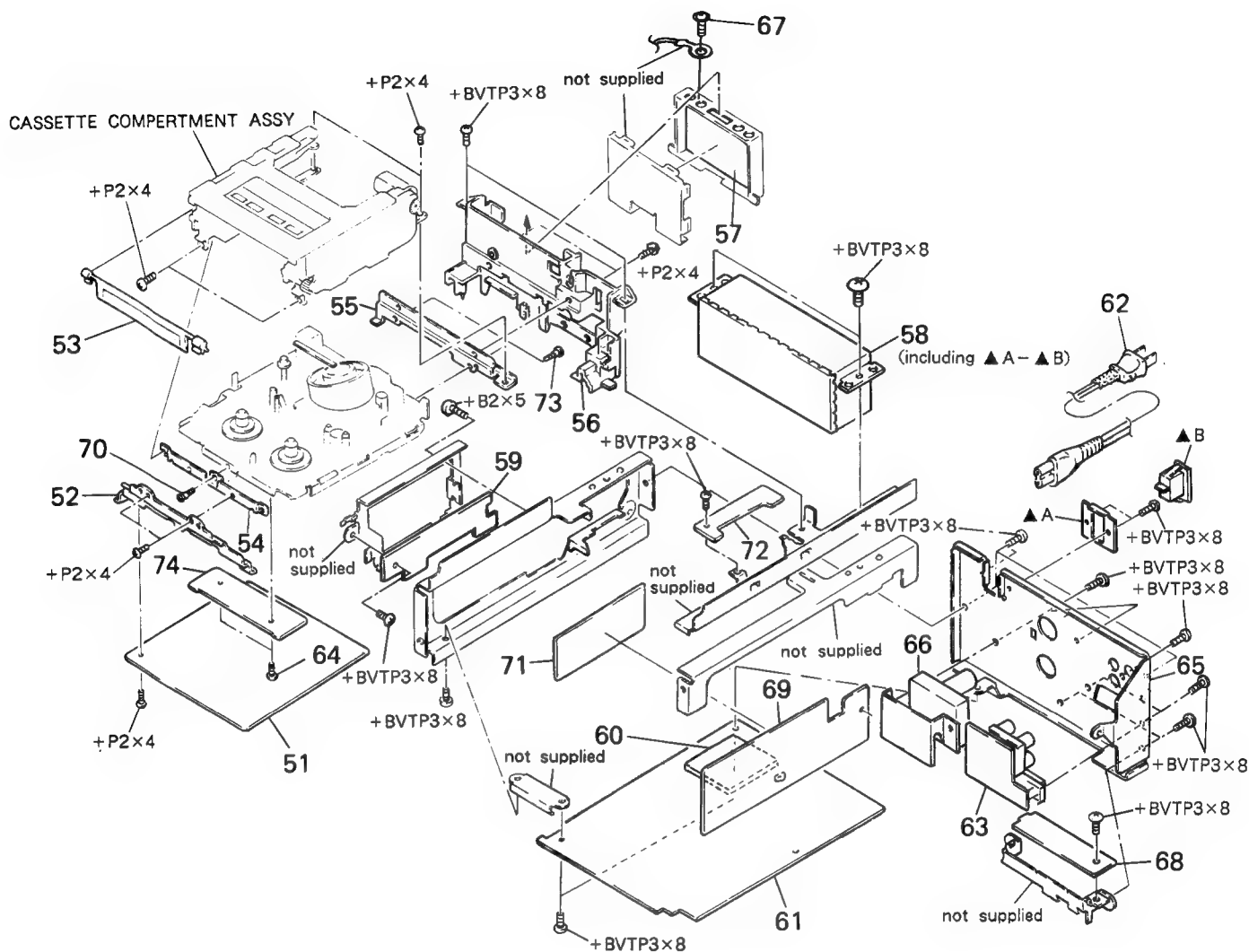
6-1. CABINET ASSEMBLY



| No. | Part No. | Description |
|-----|---------------|---------------------------|
| 1 | X-3940-089-1 | PANEL ASSY (PAL), FRONT |
| 2 | 3-689-531-01 | SPRING, TENSION |
| 3 | *A-7062-469-A | FR-38 (P) BOARD, COMPLETE |
| 4 | 3-697-937-01 | LEG (AEP, E MODEL) |
| 5 | *X-3735-210-1 | CASE ASSY, UPPER |
| 6 | 4-886-821-01 | SCREW, M3 CASE |

| No. | Part No. | Description | Remark |
|-----|---------------|---------------------------------|--------|
| 7 | *3-735-220-01 | PLATE, BOTTOM | |
| 8 | 2-181-754-01 | LID BATTERY CASE | |
| 9 | 1-465-590-11 | REMOTE COMMANDER (RMT-463) | 8 |
| 10 | 3-703-082-21 | LABEL, CAUTION (UK MODEL) | |
| 11 | 3-703-043-21 | LABEL, CAUTION, MAIN (UK MODEL) | |

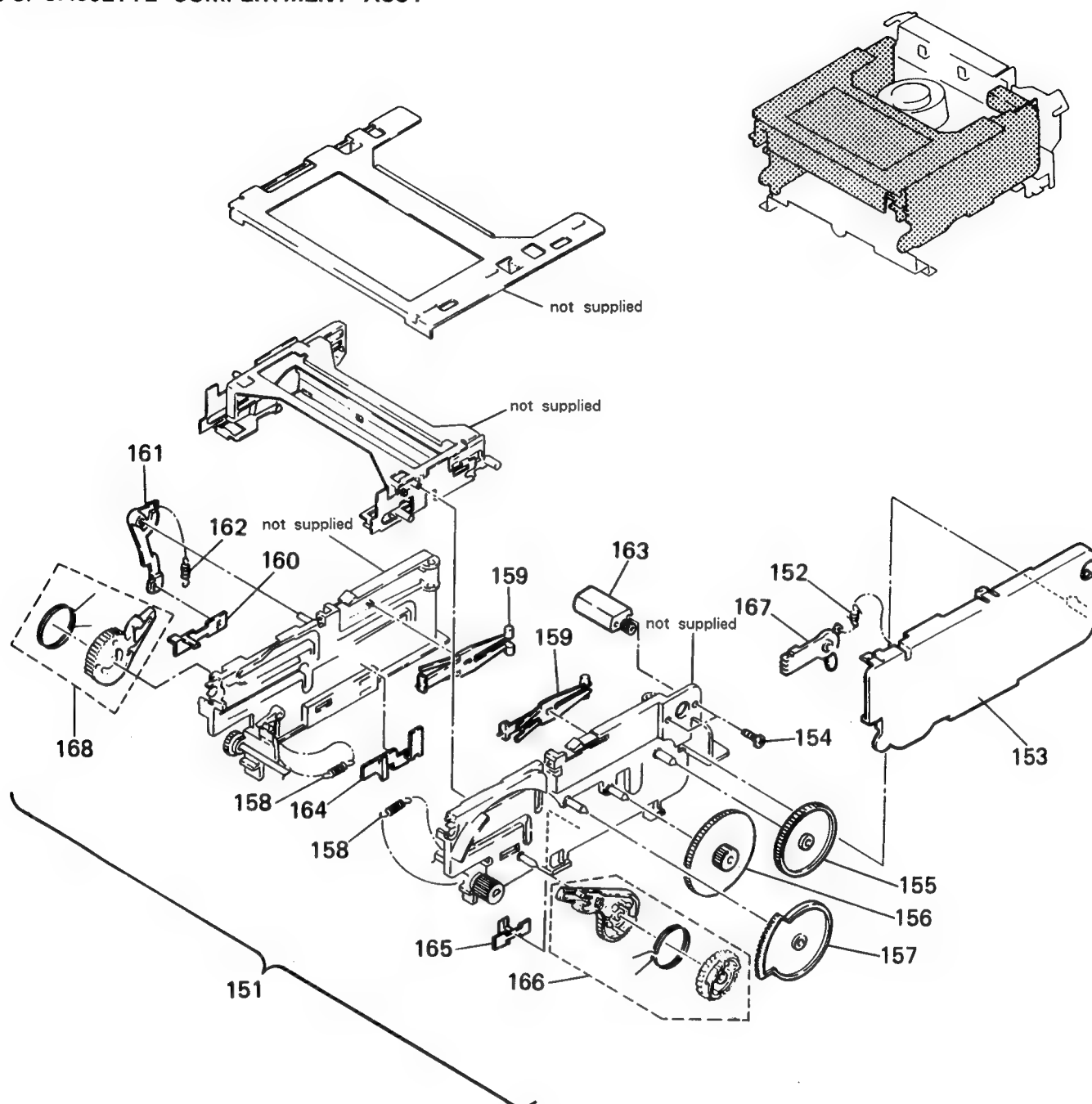
6-2. MAIN CHASSIS ASSEMBLY



Note: The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.

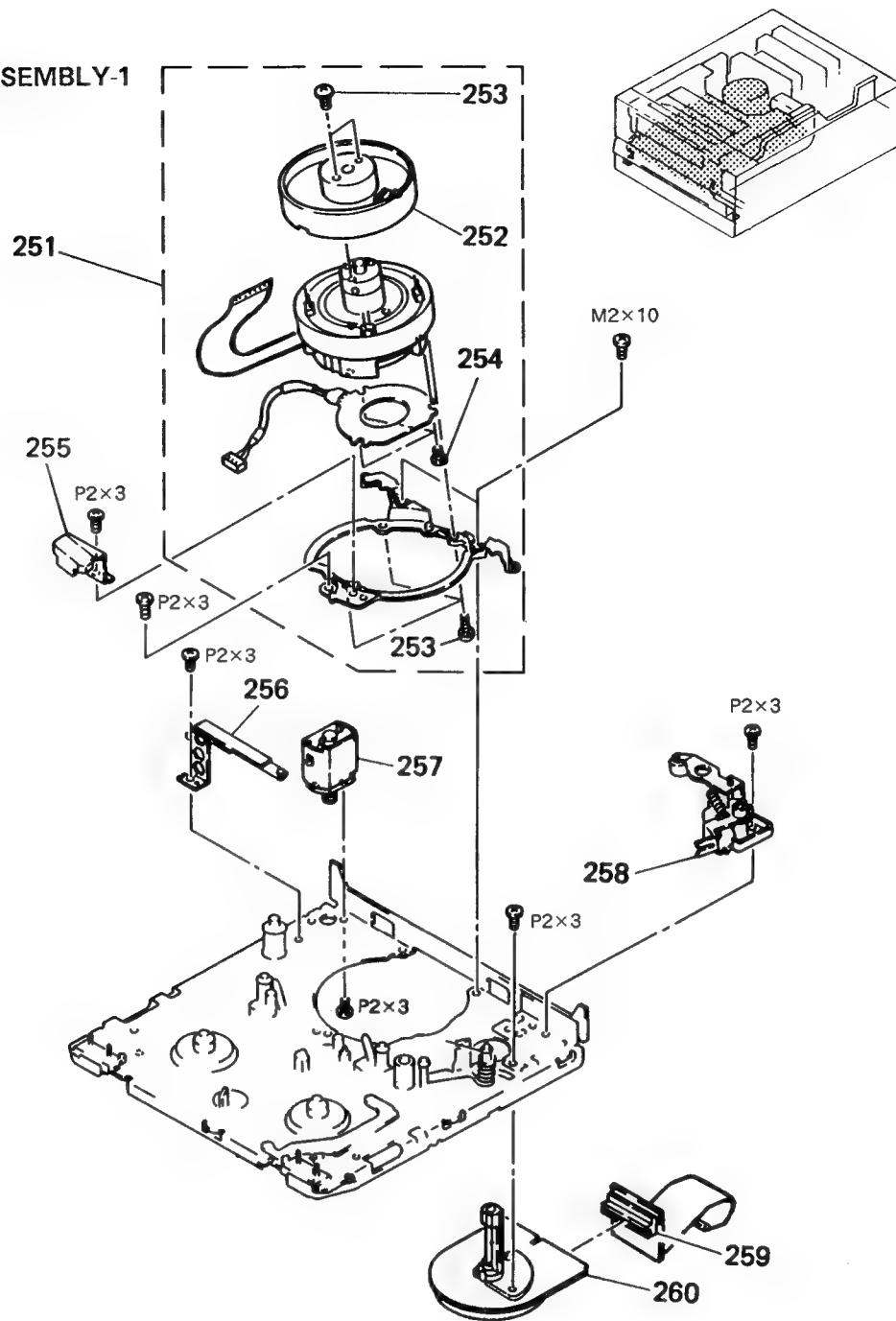
| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|-----|----------------|----------------------------|--------|-----|---------------|-------------------------------------|--------|
| 51 | *A-7062-468-A | CM-13 (P) BOARD, COMPLETE | | 65 | *X-3940-088-1 | FRAME ASSY, REAR (AEP MODEL) | |
| 52 | *3-731-132-01 | FRAME (FRONT), MD | | | *X-3940-111-1 | FRAME ASSY, REAR (UK, E MODEL) | |
| 53 | X-3731-119-1 | DOOR ASSY, FRONT | | 66 | 1-466-328-31 | MODULATOR, RF (RFU-2027) | |
| 54 | *3-732-810-02 | BRACKET (FRONT) | | | 1-466-347-31 | MODULATOR, RF (RFU-2028) (UK MODEL) | |
| 55 | *3-732-811-01 | BRACKET (REAR) | | 67 | 3-703-502-01 | SCREW | |
| 56 | *3-731-141-01 | FRAME (REAR), MD | | 68 | *1-636-978-11 | RM-44 BOARD | |
| 57 | *A-7062-467-A | RP-69 (P) BOARD, COMPLETE | | 69 | *A-7062-473-A | IN-41 (P) BOARD, COMPLETE | |
| 58 | ▲ 1-413-588-11 | POWER BLOCK (SW.REG) | | 70 | 3-732-816-01 | SCREW, STEP | |
| 59 | *A-7062-475-A | FC-43 (P) BOARD, COMPLETE | | 71 | *A-7062-474-A | AF-20 (P) BOARD, COMPLETE | |
| 60 | *A-7062-465-A | CC-56 (P) BOARD, COMPLETE | | 72 | *A-7061-590-A | RS-32 BOARD, COMPLETE | |
| 61 | *A-7062-470-A | VI-101 (P) BOARD, COMPLETE | | 73 | 3-732-817-01 | SCREW (2X4.5), TAPPING | |
| 62 | ▲ 1-558-032-11 | CORD, POWER (UK MODEL) | | 74 | *1-628-908-11 | UC-3 BOARD | |
| | ▲ 1-575-132-11 | CORD, POWER (AEP, E MODEL) | | | | | |
| 63 | *A-7062-471-A | PI-24 (P) BOARD, COMPLETE | | | | | |
| 64 | 3-713-790-21 | SCREW (M2X6), TAPPING, P3 | | | | | |

6-3. CASSETTE COMPERTMENT ASSY



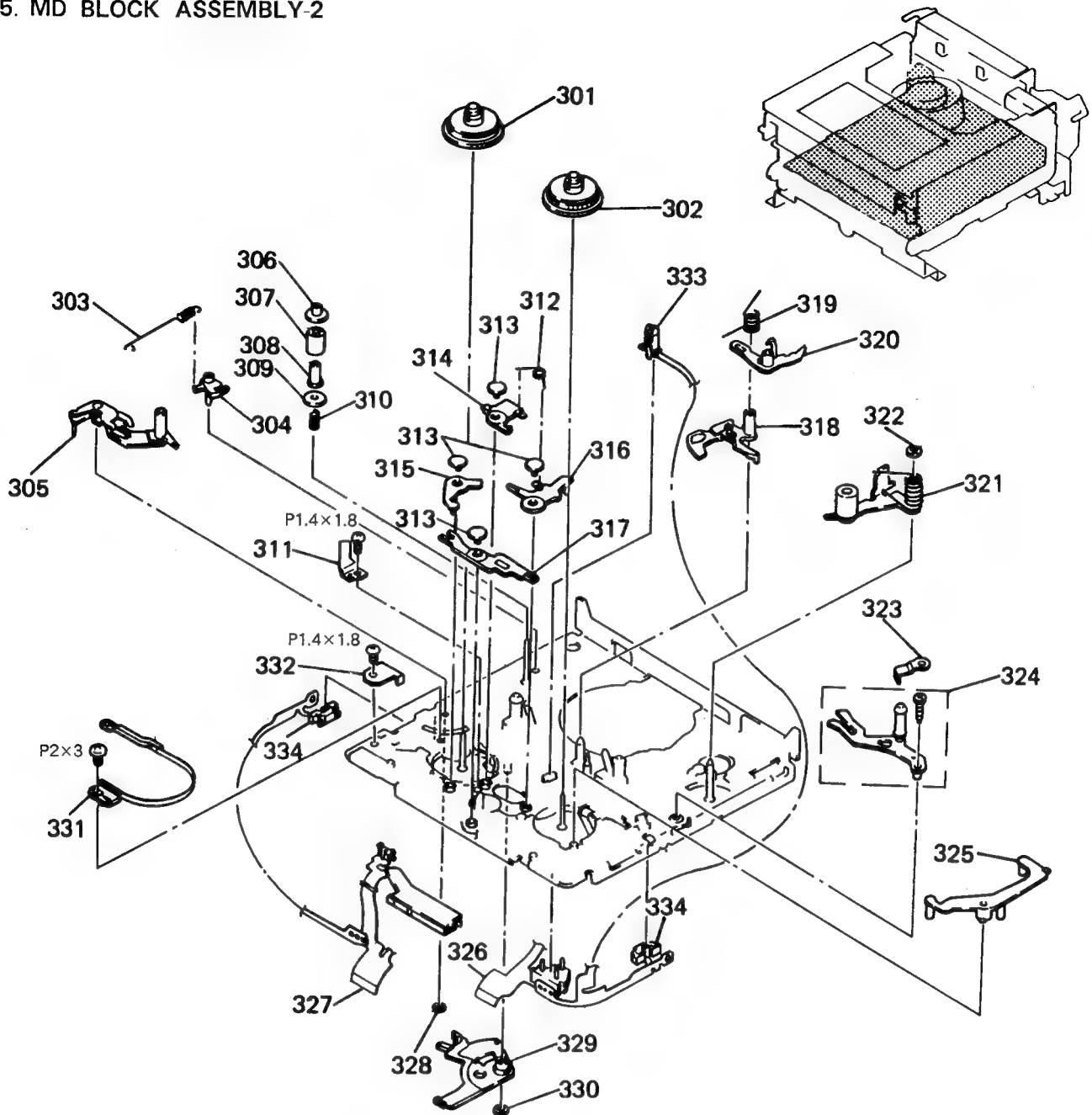
| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|-----|--------------|-------------------------------|--------|-----|--------------|-----------------------------------|--------|
| 151 | A-7090-892-A | CASSETTE COMPARTMENT ASSY, FL | | 160 | 3-731-189-01 | SLIDER, LOCK | |
| 152 | 3-731-175-02 | SPRING, TENSION | | 161 | 3-731-188-01 | ARM LOCK, DRIVING | |
| 153 | 3-732-804-03 | COVER, GEAR | | 162 | 3-731-174-01 | SPRING, TENSION | |
| 154 | 3-730-141-01 | SCREW (PSW) (2X4) | | 163 | X-3731-108-1 | MOTOR ASSY, FL (THREADING) (M901) | |
| 155 | 3-731-182-01 | GEAR (B), DECELERATION | | 164 | X-3726-867-1 | PRISM (LEFT) ASSY | |
| 156 | 3-731-181-01 | GEAR (A), DECELERATION | | 165 | X-3726-866-1 | PRISM (RIGHT) ASSY | |
| 157 | 3-731-192-01 | GEAR, MIDWAY | | 166 | X-3731-109-2 | ARM (RIGHT) ASSY, DRIVING | |
| 158 | 3-731-176-02 | SPRING, TENSION | | 167 | 3-731-185-01 | LINK, SWITCHING, DOOR | |
| 159 | 3-731-184-02 | HOLDER LOCK | | 168 | X-3731-111-1 | ARM (LEFT) ASSY, DRIVING | |

6-4. MD BLOCK ASSEMBLY-1



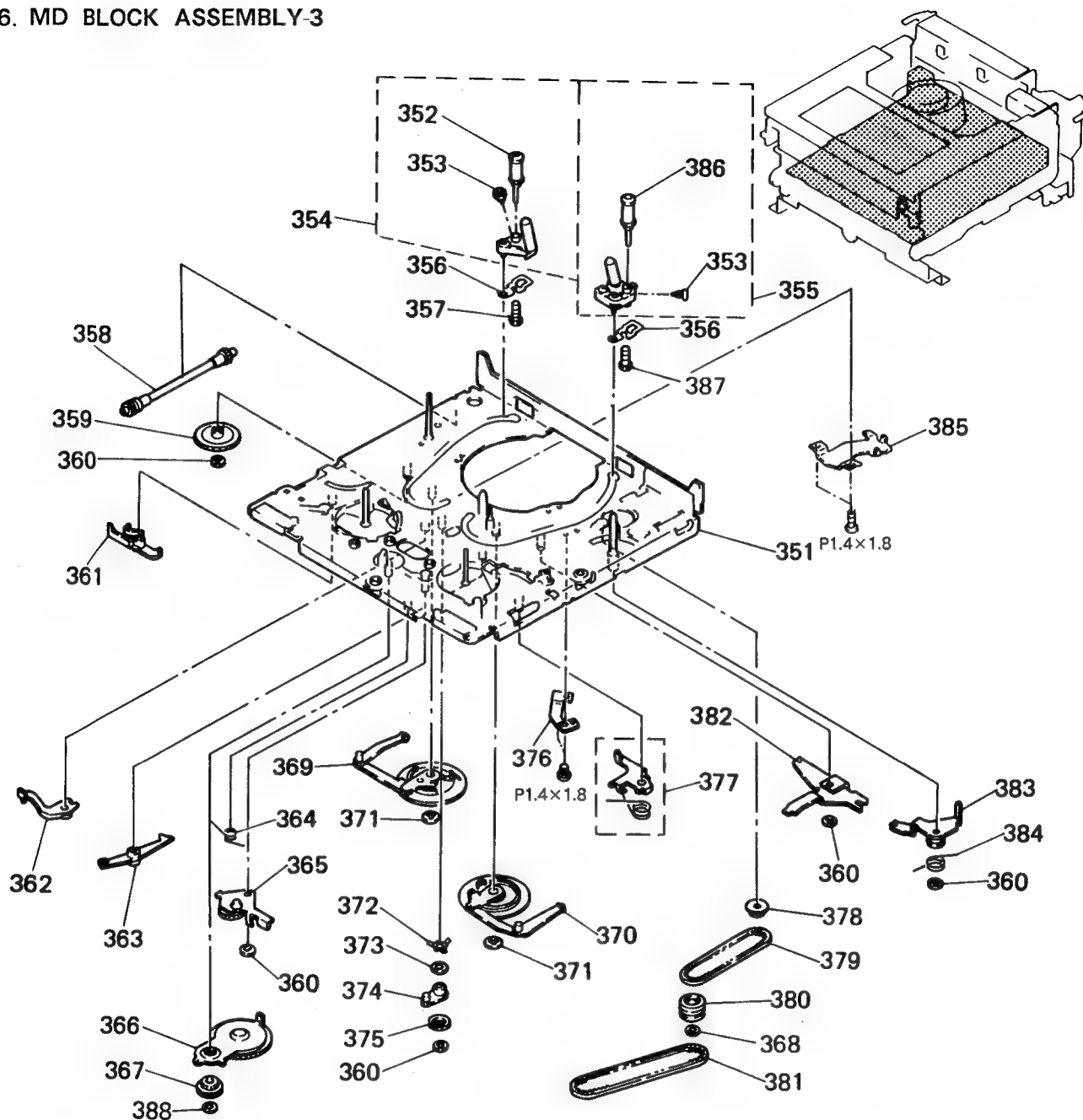
| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|-----|--------------|------------------------------------|---------|-----|---------------|---|--------|
| 251 | A-7048-424-A | DRUM ASSY (DGR-72A-R) | 252-254 | 256 | X-3728-864-1 | GROUND ASSY, SHAFT | |
| 252 | A-7049-335-A | DRUM ASSY, ROTARY UPPER (DGR-72-R) | | 257 | A-7040-160-A | MOTOR ASSY, THREADING (LOADING) ((M903) | |
| 253 | 3-730-141-01 | SCREW (PSW) (2X4) | | 258 | A-7040-161-B | ROLLER BLOCK ASSY, HC | |
| 254 | 3-895-823-01 | SCREW (P1.4X2.5) TAPPING | | 259 | *1-628-694-21 | CC-23 BOARD | |
| 255 | 3-728-868-01 | GUARD, GUIDE | | 260 | 8-835-331-01 | MOTOR, DC U-22A (CAPSTAN MOTOR) (M902) | |

6-5. MD BLOCK ASSEMBLY-2



| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|-----|--------------|---------------------------------|--------|-----|--------------|------------------------------|--------|
| 301 | X-3728-851-1 | TABLE ASSY, REEL, S | | 318 | 3-728-875-01 | STOPPER, RK | |
| 302 | X-3728-855-1 | TABLE ASSY, REEL, T | | 319 | 3-726-864-01 | SPRING (RK), TORSION | |
| 303 | 3-736-414-01 | SPRING, TENSION | | 320 | 3-728-852-02 | ARM, RK STOPPER | |
| 304 | 3-728-855-03 | ARM, ADJUSTMENT | | 321 | A-7040-219-A | ARM BLOCK ASSY, PINCH | |
| 305 | X-3728-867-1 | ARM ASSY (S), TENSION REGULATOR | | 322 | 3-669-465-00 | WASHER (1.5), STOPPER | |
| 306 | 3-726-884-01 | FLANGE, UPPER, TG2 | | 323 | 3-728-808-01 | SPRING, LEAF | |
| 307 | 3-726-883-01 | ROLLER, TG2 | | 324 | X-3728-869-1 | ARM ASSY, TG7 | |
| 308 | 3-726-885-01 | SLEEVE, TG2 | | 325 | 3-728-848-01 | ARM, LB RELEASE | |
| 309 | 3-726-882-02 | FLANGE, LOWER, TG2 | | 326 | 1-628-061-12 | FP-90 FLEXIBLE BOARD | |
| 310 | 3-726-886-01 | SPRING, COMPRESSION | | 327 | 1-628-060-12 | FP-89 FLEXIBLE BOARD | |
| 311 | 3-726-848-01 | RETAINER, TL | | 328 | 3-321-393-11 | WASHER, STOPPER | |
| 312 | 3-726-866-01 | SPRING (ST), TORSION | | 329 | X-3726-806-2 | LEVER ASSY, SW | |
| 313 | 3-726-858-01 | PIN, SHAFT RETAINER | | 330 | 3-726-829-01 | WASHER, STOPPER | |
| 314 | 3-728-849-01 | BRAKE, S | | 331 | X-3728-859-1 | BAND ASSY, TENSION REGULATOR | |
| 315 | 3-726-852-01 | BRAKE, LB | | 332 | 3-730-125-01 | RETAINER, SW | |
| 316 | 3-728-850-01 | BRAKE, T | | 333 | 3-728-837-01 | HOLDER, LED | |
| 317 | 3-726-853-01 | LEVER, LB | | 334 | 3-728-869-02 | HOLDER, SENSOR | |

6-6. MD BLOCK ASSEMBLY-3



| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|-----|---------------|----------------------------------|----------|-----|---------------|---------------------------------|--------|
| 351 | *X-3749-038-1 | CHASSIS ASSY, MECHANICAL | | 371 | 3-669-465-00 | WASHER (1.5), STOPPER | |
| 352 | X-3726-820-1 | ROLLER ASSY (U), GUIDE | | 372 | 3-726-867-01 | SPRING, LEAF | |
| 353 | 3-726-822-01 | SCREW (M1.4X2) (STEP), HEAD | | 373 | 3-701-436-21 | WASHER, POLYETHYLENE | |
| 354 | A-7040-128-A | COASTER (LEFT) BLOCK ASSY | 352, 353 | 374 | 3-726-857-02 | ARM, UL | |
| 355 | A-7040-217-A | COASTER (RIGHT) BLOCK ASSY (NTP) | 353, 386 | 375 | 3-726-856-02 | GEAR, UL | |
| 356 | 3-736-485-01 | SPRING, LEAF, COSTER | | 376 | *3-726-805-01 | REINFORCEMENT (TT) | |
| 357 | 3-726-830-01 | SCREW (M1.4X4) (THREE LOCK) | | 377 | X-3726-808-2 | BRAKE ASSY, TS | |
| 358 | X-3728-868-1 | WORM ASSY | | 378 | X-3726-805-1 | GEAR ASSY, JOINT | |
| 359 | 3-744-109-01 | GEAR, WHEEL | | 379 | 3-728-866-11 | BELT (S), TIMING | |
| 360 | 3-726-829-01 | WASHER, STOPPER | | 380 | X-3726-838-1 | PULLEY (UPPER) ASSY, MIDWAY | |
| 361 | 3-728-842-01 | LEVER, EJECT | | 381 | 3-741-197-01 | BELT (L), TIMING | |
| 362 | 3-728-851-01 | BRAKE, UL | | 382 | 3-744-145-01 | LEVER, THREADING | |
| 363 | 3-726-854-01 | ARM, BRAKE RELEASE | | 383 | X-3726-824-1 | ARM ASSY, PINCH SUB | |
| 364 | 3-726-865-01 | SPRING (LB), TORSION | | 384 | 3-726-895-01 | SPRING | |
| 365 | A-7040-130-A | GEAR BLOCK ASSY, LB | | 385 | X-3726-841-1 | REINFORCEMENT (SS) ASSY | |
| 366 | X-3728-866-1 | GEAR ASSY, RK | | 386 | X-3728-810-1 | ROLLER ASSY (U)(PLATING), GUIDE | |
| 367 | X-3728-858-1 | GEAR ASSY, RC | | 387 | 3-736-473-01 | SCREW (M2X0.25) (THREE LOCK) | |
| 368 | 3-533-073-01 | WASHER | | 388 | 3-321-393-11 | WASHER, STOPPER | |
| 369 | X-3728-842-1 | GEAR (LEFT) ASSY, DRIVE | | | | | |
| 370 | X-3728-843-1 | GEAR (RIGHT) ASSY, DRIVE | | | | | |

SECTION 7 ELECTRICAL PARTS LIST

EV-C3E

FP-89



FP-90

POWER BLOCK

RS-32

RP-69

NOTE:

The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- RESISTORS**
All resistors are in ohms
METAL: Metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- XX, -X mean standardized parts, so they may have some difference from the original one.
- SEMICONDUCTORS**
In each case, U: μ , for example:
UA.....: μ A....., UPA.....: μ PA.....,
UPB.....: μ PB....., UPC.....: μ PC.....,
UPD.....: μ PD.....
- CAPACITORS**
MF: μ F, PF: μ F
- COILS**
MMH: mH, UH: μ H

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|--------|---------------|--|--------|--------|---------------|---|--------|
| | 1-628-060-12 | FP-89 FLEXIBLE BOARD ***** | | | | DIODE | |
| | 3-728-869-02 | HOLDER, SENSOR | | D301 | 8-719-104-34 | DIODE 1S2836 | |
| | | DIODE | | D302 | 8-719-400-18 | DIODE MA152WK | |
| D301 | 8-719-820-44 | PHOTO COUPLER TLP907-0 (SONY2) | | | | IC | |
| | | TRANSISTOR | | IC301 | 8-759-920-94 | IC MSM6411B-19RS | |
| Q301 | 8-729-906-48 | TRANSISTOR EE-TP109 | | | | TRANSISTOR | |
| | | SWITCH | | Q301 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| S301 | 1-571-099-11 | SWITCH | | Q302 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| S901 | 1-572-253-11 | SWITCH, SLIDE (ENCODER) | | Q303 | 8-729-216-22 | TRANSISTOR 2SA1162 | |
| | | ***** | | Q304 | 8-729-216-22 | TRANSISTOR 2SA1162 | |
| | 1-628-061-12 | FP-90 FLEXIBLE BOARD ***** | | Q305 | 8-729-805-25 | TRANSISTOR 2SB1121 | |
| | 3-728-837-01 | HOLDER, LED | | | | RESISTOR | |
| | 3-728-869-02 | HOLDER, SENSOR | | R301 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | |
| | | DIODE | | R302 | 1-216-089-00 | METAL GLAZE 47K 5% 1/10W | |
| D302 | 8-719-940-81 | DIODE GL452S | | R304 | 1-216-302-00 | METAL GLAZE 2.7 5% 1/10W | |
| D303 | 8-719-820-44 | PHOTO COUPLER TLP907-0 (SONY2) | | R305 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | |
| | | TRANSISTOR | | R306 | 1-216-051-00 | METAL GLAZE 1.2K 5% 1/10W | |
| Q302 | 8-729-906-48 | TRANSISTOR EE-TP109 | | R307 | 1-216-069-00 | METAL GLAZE 6.8K 5% 1/10W | |
| | | SWITCH | | R308 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | |
| S302 | 1-572-298-11 | SWITCH, PUSH (REC PROOF) | | R309 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| | | ***** | | | | CRYSTAL | |
| | 1-413-588-11 | POWER BLOCK (SW. REG) ***** | | X301 | 1-567-192-11 | OSCILLATOR, CERAMIC (4MHz) | |
| | | ***** | | | | ***** | |
| | *A-7061-590-A | RS-32 BOARD, COMPLETE (Ref.No 5,000 Series) ***** | | | *A-7062-467-A | RP-69 (P) BOARD, COMPLETE (Ref.No 5,000 Serie | |
| | | CAPACITOR | | | | ***** | |
| C301 | 1-163-101-00 | CERAMIC CHIP 22PF 5% 50V | | | | CAPACITOR | |
| C302 | 1-163-101-00 | CERAMIC CHIP 22PF 5% 50V | | C031 | 1-164-232-11 | CERAMIC CHIP 0.01MF 50V | |
| C303 | 1-163-035-00 | CERAMIC CHIP 0.047MF 50V | | C032 | 1-124-778-00 | ELECT CHIP 22MF 20% 6.3V | |
| C339 | 1-126-159-11 | ELECT 0.47MF 20% 50V | | C033 | 1-163-038-00 | CERAMIC CHIP 0.1MF 25V | |
| | | CONNECTOR | | C034 | 1-164-232-11 | CERAMIC CHIP 0.01MF 50V | |
| CN301 | 1-506-485-11 | PIN, CONNECTOR 6P | | C035 | 1-163-038-00 | CERAMIC CHIP 0.1MF 25V | |
| CN302 | 1-506-482-11 | PIN, CONNECTOR 3P | | | | | |
| | | | | C036 | 1-164-232-11 | CERAMIC CHIP 0.01MF 50V | |
| | | | | C037 | 1-163-809-11 | CERAMIC CHIP 0.047MF 10% 25V | |
| | | | | C038 | 1-164-232-11 | CERAMIC CHIP 0.01MF 50V | |
| | | | | C039 | 1-163-137-00 | CERAMIC CHIP 680PF 5% 50V | |
| | | | | C040 | 1-164-232-11 | CERAMIC CHIP 0.01MF 50V | |
| | | | | C041 | 1-163-109-00 | CERAMIC CHIP 47PF 5% 50V | |
| | | | | C042 | 1-163-038-00 | CERAMIC CHIP 0.1MF 25V | |
| | | | | C043 | 1-124-778-00 | ELECT CHIP 22MF 20% 6.3V | |
| | | | | C044 | 1-164-232-11 | CERAMIC CHIP 0.01MF 50V | |
| | | | | C045 | 1-164-232-11 | CERAMIC CHIP 0.01MF 50V | |
| | | | | C046 | 1-164-232-11 | CERAMIC CHIP 0.01MF 10% 50V | |
| | | | | C047 | 1-163-077-00 | CERAMIC CHIP 0.1MF 10% 25V | |
| | | | | C050 | 1-164-633-11 | CERAMIC CHIP 0.1MF 10% 25V | |
| | | | | C051 | 1-164-633-11 | CERAMIC CHIP 0.1MF 10% 25V | |
| | | | | C052 | 1-164-633-11 | CERAMIC CHIP 0.1MF 10% 25V | |

RP-69

When indicating parts by reference number, please include the board name.

CM-13

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|----------|--------------|---------------------------|--------|--------|--------------|---------------------------|--------|
| Q306 | 8-729-100-66 | TRANSISTOR 2SC1623 | | R313 | 1-216-121-00 | METAL GLAZE 1M 5% 1/10W | |
| Q307 | 8-729-920-74 | TRANSISTOR 2SC2412K-QR | | R314 | 1-216-047-00 | METAL GLAZE 820 5% 1/10W | |
| Q308 | 8-729-901-01 | TRANSISTOR DTC144EK | | R315 | 1-216-085-00 | METAL GLAZE 33K 5% 1/10W | |
| Q309 | 8-729-901-01 | TRANSISTOR DTC144EK | | R316 | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W | |
| Q403 | 8-729-901-06 | TRANSISTOR DTA144EK | | R317 | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W | |
| Q404 | 8-729-901-06 | TRANSISTOR DTA144EK | | R318 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | |
| Q407 | 8-729-920-74 | TRANSISTOR 2SC2412K-QR | | R319 | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W | |
| Q408 | 8-729-901-01 | TRANSISTOR DTC144EK | | R320 | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W | |
| Q501 | 8-729-901-01 | TRANSISTOR DTC144EK | | R321 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | |
| Q502 | 8-729-100-66 | TRANSISTOR 2SC1623 | | R322 | 1-216-085-00 | METAL GLAZE 33K 5% 1/10W | |
| Q503 | 8-729-805-25 | TRANSISTOR 2SB1121 | | R323 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| Q504 | 8-729-100-66 | TRANSISTOR 2SC1623 | | R325 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | |
| Q505 | 8-729-805-25 | TRANSISTOR 2SB1121 | | R326 | 1-216-029-00 | METAL GLAZE 150 5% 1/10W | |
| Q506 | 8-729-901-01 | TRANSISTOR DTC144EK | | R327 | 1-216-029-00 | METAL GLAZE 150 5% 1/10W | |
| Q507 | 8-729-901-06 | TRANSISTOR DTA144EK | | R328 | 1-216-085-00 | METAL GLAZE 33K 5% 1/10W | |
| Q508 | 8-729-901-01 | TRANSISTOR DTC144EK | | R329 | 1-216-121-00 | METAL GLAZE 1M 5% 1/10W | |
| Q509 | 8-729-920-74 | TRANSISTOR 2SC2412K-QR | | R330 | 1-216-059-00 | METAL GLAZE 2.7K 5% 1/10W | |
| Q510 | 8-729-920-74 | TRANSISTOR 2SC2412K-QR | | R331 | 1-216-055-00 | METAL GLAZE 1.8K 5% 1/10W | |
| RESISTOR | | | | R332 | 1-216-059-00 | METAL GLAZE 2.7K 5% 1/10W | |
| R101 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | | R333 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R201 | 1-216-113-00 | METAL GLAZE 470K 5% 1/10W | | R334 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R202 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | | R335 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R203 | 1-216-081-00 | METAL GLAZE 22K 5% 1/10W | | R336-A | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R204 | 1-216-081-00 | METAL GLAZE 22K 5% 1/10W | | R336-B | 1-216-099-00 | METAL GLAZE 120K 5% 1/10W | |
| R205 | 1-216-093-00 | METAL GLAZE 68K 5% 1/10W | | R337 | 1-216-089-00 | METAL GLAZE 47K 5% 1/10W | |
| R206 | 1-216-089-00 | METAL GLAZE 47K 5% 1/10W | | R338 | 1-216-089-00 | METAL GLAZE 47K 5% 1/10W | |
| R209 | 1-216-101-00 | METAL GLAZE 150K 5% 1/10W | | R339 | 1-216-097-00 | METAL GLAZE 100K 5% 1/10W | |
| R210 | 1-216-081-00 | METAL GLAZE 22K 5% 1/10W | | R341 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| R211 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | | R342 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | |
| R212 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | | R343 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | |
| R213 | 1-216-045-00 | METAL GLAZE 680 5% 1/10W | | R401 | 1-216-043-00 | METAL GLAZE 560 5% 1/10W | |
| R214 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | | R402 | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W | |
| R215 | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W | | R403 | 1-216-172-00 | METAL GLAZE 82 5% 1/8W | |
| R216 | 1-216-025-00 | METAL GLAZE 100 5% 1/10W | | R405 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R217 | 1-216-079-00 | METAL GLAZE 18K 5% 1/10W | | R406 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R218 | 1-216-085-00 | METAL GLAZE 33K 5% 1/10W | | R407 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R219 | 1-216-089-00 | METAL GLAZE 47K 5% 1/10W | | R408 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R220 | 1-216-304-11 | METAL GLAZE 3.3 5% 1/10W | | R410 | 1-216-093-00 | METAL GLAZE 68K 5% 1/10W | |
| R221 | 1-216-304-11 | METAL GLAZE 3.3 5% 1/10W | | R411 | 1-216-093-00 | METAL GLAZE 68K 5% 1/10W | |
| R222 | 1-216-304-11 | METAL GLAZE 3.3 5% 1/10W | | R414 | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W | |
| R223 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | | R415 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R224 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | | R416 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R301 | 1-216-041-00 | METAL GLAZE 470 5% 1/10W | | R417 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | |
| R302 | 1-216-041-00 | METAL GLAZE 470 5% 1/10W | | R418 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | |
| R303 | 1-216-085-00 | METAL GLAZE 33K 5% 1/10W | | R419 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | |
| R304 | 1-216-081-00 | METAL GLAZE 22K 5% 1/10W | | R420 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | |
| R305 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | | R421 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R306 | 1-216-035-00 | METAL GLAZE 270 5% 1/10W | | R423 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R307 | 1-216-031-00 | METAL GLAZE 180 5% 1/10W | | R428 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R309 | 1-216-081-00 | METAL GLAZE 22K 5% 1/10W | | R429 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R310 | 1-216-083-00 | METAL GLAZE 27K 5% 1/10W | | R432 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R312 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | | R435 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| | | | | R436 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |

When indicating parts by reference number, please include the board name.

CM-13

FR-38

| Ref.No | Part No. | Description | Remark |
|--------|--------------|----------------------------|--------|
| R437 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| R442 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| R444 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| R446 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| R447 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R448 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R449 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R501 | 1-216-691-11 | METAL CHIP 47K 0.50% 1/10W | |
| R502 | 1-216-691-11 | METAL CHIP 47K 0.50% 1/10W | |
| R503 | 1-216-101-00 | METAL GLAZE 150K 5% 1/10W | |
| R504 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R505 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R506 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R507 | 1-216-069-00 | METAL GLAZE 6.8K 5% 1/10W | |
| R508 | 1-216-069-00 | METAL GLAZE 6.8K 5% 1/10W | |
| R510 | 1-216-063-00 | METAL GLAZE 3.9K 5% 1/10W | |
| R511 | 1-216-033-00 | METAL GLAZE 220 5% 1/10W | |
| R512 | 1-216-069-00 | METAL GLAZE 6.8K 5% 1/10W | |
| R513 | 1-216-063-00 | METAL GLAZE 3.9K 5% 1/10W | |
| R514 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | |
| R515 | 1-216-079-00 | METAL GLAZE 18K 5% 1/10W | |
| R516 | 1-216-045-00 | METAL GLAZE 680 5% 1/10W | |
| R517 | 1-216-067-00 | METAL GLAZE 5.6K 5% 1/10W | |
| R518 | 1-216-055-00 | METAL GLAZE 1.8K 5% 1/10W | |
| R519 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | |
| R520 | 1-216-079-00 | METAL GLAZE 18K 5% 1/10W | |
| R521 | 1-216-045-00 | METAL GLAZE 680 5% 1/10W | |
| R522 | 1-216-067-00 | METAL GLAZE 5.6K 5% 1/10W | |
| R523 | 1-216-055-00 | METAL GLAZE 1.8K 5% 1/10W | |
| R524 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | |
| R525 | 1-216-081-00 | METAL GLAZE 22K 5% 1/10W | |
| R527 | 1-216-097-00 | METAL GLAZE 100K 5% 1/10W | |
| R531 | 1-216-097-00 | METAL GLAZE 100K 5% 1/10W | |
| R532 | 1-216-089-00 | METAL GLAZE 47K 5% 1/10W | |
| R533 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |

VARIABLE RESISTOR

| | | |
|-------|--------------|-----------------------|
| RV301 | 1-230-496-11 | RES, ADJ, CARBON 10K |
| RV401 | 1-230-499-11 | RES, ADJ, CARBON 100K |
| RV501 | 1-228-993-00 | RES, ADJ, CARBON 4.7K |

CRYSTAL

| | | |
|------|--------------|--------------------------------|
| X301 | 1-567-699-11 | VIBRATOR, CRYSTAL (5.94755MHz) |
| X401 | 1-577-116-21 | VIBRATOR, CRYSTAL (16MHz) |

| Ref.No | Part No. | Description | Remark |
|------------------------|--------------|---|----------|
| *A-7062-469-A | | FR-38 (P) BOARD, COMPLETE (Ref.No 6,000 Series) | |
| 1-808-652-11 | | DISPLAY PANEL, LIQUID CRYSTAL | |
| *3-674-390-00 | | HOLDER (B), LED | |
| 3-735-201-01 | | COVER, LED | |
| *3-735-208-01 | | HOLDER, INDICATION TUBE | |
| *3-940-593-01 | | HOLDER, LED | |
| <u>CAPACITOR</u> | | | |
| C092 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V |
| C104 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% 50V |
| C105 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% 50V |
| C106 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 50V |
| C107 | 1-131-352-00 | ELECT(SOLID) 6.8MF | 20% 6.3V |
| C108 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C110 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 50V |
| C201 | 1-163-105-00 | CERAMIC CHIP 33PF | 5% 50V |
| C202 | 1-163-105-00 | CERAMIC CHIP 33PF | 5% 50V |
| C203 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| <u>CONNECTOR</u> | | | |
| CN109 | 1-506-482-11 | PIN, CONNECTOR 3P | |
| <u>DIODE</u> | | | |
| D001 | 8-719-920-05 | LED SLP281C-50 (PLAY) | |
| D002 | 8-719-820-51 | LED TLSG126 (ON/STANDBY) | |
| D003 | 8-719-980-83 | LED GL3PR43 (REC) | |
| D004 | 8-719-812-32 | LED TLY123 (PAUSE/STILL) | |
| D102 | 8-719-918-96 | LED AA3422S (EDIT) | |
| D103 | 8-719-812-32 | LED TLY123 (SYNCHRO EDIT) | |
| D104 | 8-719-974-88 | LED LT9322E (LCD BACK LIGHT) | |
| D105 | 8-719-400-18 | DIODE MA152WK | |
| D180 | 8-719-400-18 | DIODE MA152WK | |
| D202 | 8-719-104-34 | DIODE 1S2836 | |
| D203 | 8-719-400-18 | DIODE MA152WK | |
| <u>IC</u> | | | |
| IC101 | 8-752-816-26 | IC CXP5078H-056Q | |
| IC102 | 8-741-100-47 | IC SBX1610-09 | |
| IC103 | 8-759-937-56 | IC S-8054ALB-LM-S | |
| IC201 | 8-759-910-84 | IC MB88201-170N | |
| <u>JUMPER RESISTOR</u> | | | |
| JR201 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| JR202 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| JR203 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| JR301 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| JR302 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| JR303 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| <u>COIL</u> | | | |
| L111 | 1-410-192-51 | INDUCTOR CHIP 1UH | |

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|-----------------|--------------|----------------------------|--------|--|--------------|---|--------|
| Q101 | 8-729-901-01 | TRANSISTOR DTC144EK | | <u>SWITCH</u> | | | |
| Q102 | 8-729-901-01 | TRANSISTOR DTC144EK | | SW001 | 1-554-088-00 | SWITCH, KEY BOARD (REC) | |
| Q180 | 8-729-901-06 | TRANSISTOR DTA144EK | | SW002 | 1-554-174-00 | SWITCH, KEY BOARD (PLAY) | |
| Q201 | 8-729-901-01 | TRANSISTOR DTC144EK | | SW003 | 1-554-174-00 | SWITCH, KEY BOARD (FF) | |
| Q202 | 8-729-901-01 | TRANSISTOR DTC144EK | | SW011 | 1-554-174-00 | SWITCH, KEY BOARD (STOP) | |
| <u>RESISTOR</u> | | | | SW012 | 1-554-174-00 | SWITCH, KEY BOARD (REW) | |
| R001 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | | SW014 | 1-554-174-00 | SWITCH, KEY BOARD (PAUSE/STILL) | |
| R002 | 1-216-071-00 | METAL GLAZE 8.2K 5% 1/10W | | SW021 | 1-554-174-00 | SWITCH, KEY BOARD (SP/LP) | |
| R008 | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W | | SW022 | 1-554-174-00 | SWITCH, KEY BOARD (EDIT) | |
| R009 | 1-216-075-00 | METAL GLAZE 12K 5% 1/10W | | SW031 | 1-554-174-00 | SWITCH, KEY BOARD (GO TO ZERO) | |
| R011 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | | SW041 | 1-554-174-00 | SWITCH, KEY BOARD (COUNTER RESET) | |
| R017 | 1-216-084-00 | METAL GLAZE 30K 5% 1/10W | | SW043 | 1-554-174-00 | SWITCH, KEY BOARD (SYNCHRO EDIT) | |
| R018 | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W | | SW051 | 1-554-174-00 | SWITCH, KEY BOARD (SLOW/STILL ADJUST ▲) | |
| R019 | 1-216-075-00 | METAL GLAZE 12K 5% 1/10W | | SW052 | 1-554-174-00 | SWITCH, KEY BOARD (SLOW/STILL ADJUST ▼) | |
| R021 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | | SW101 | 1-554-174-00 | SWITCH, KEY BOARD (EJECT) | |
| R028 | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W | | SW102 | 1-554-174-00 | SWITCH, KEY BOARD (ON/STANDBY) | |
| R029 | 1-216-075-00 | METAL GLAZE 12K 5% 1/10W | | <u>CRYSTAL</u> | | | |
| R033 | 1-216-081-00 | METAL GLAZE 22K 5% 1/10W | | X101 | 1-567-160-21 | OSCILLATOR, CERAMIC (4.19MHz) | |
| R036 | 1-216-076-00 | METAL GLAZE 13K 5% 1/10W | | X201 | 1-567-143-00 | OSCILLATOR, CERAMIC (6MHz) | |
| R038 | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W | | ***** | | | |
| R039 | 1-216-075-00 | METAL GLAZE 12K 5% 1/10W | | *A-7062-470-A VI-101 (P) BOARD, COMPLETE | | | |
| R043 | 1-216-081-00 | METAL GLAZE 22K 5% 1/10W | | ***** | | | |
| R046 | 1-216-076-00 | METAL GLAZE 13K 5% 1/10W | | (Ref.No 1,000 Series) | | | |
| R048 | 1-216-061-00 | METAL GLAZE 3.3K 5% 1/10W | | *3-731-164-01 CASE (MAIN), SHIELD, CCD | | | |
| R049 | 1-216-075-00 | METAL GLAZE 12K 5% 1/10W | | *3-731-165-01 LID, SHIELD CASE, CCD | | | |
| R051 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | | <u>CAPACITOR</u> | | | |
| R059 | 1-216-075-00 | METAL GLAZE 12K 5% 1/10W | | C001 | 1-126-157-11 | ELECT 10MF 20% 16V | |
| R081 | 1-216-041-00 | METAL GLAZE 470 5% 1/10W | | C002 | 1-164-232-11 | CERAMIC CHIP 0.01MF 10% 50V | |
| R082 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | | C003 | 1-126-157-11 | ELECT 10MF 20% 16V | |
| R083 | 1-216-025-00 | METAL GLAZE 100 5% 1/10W | | C004 | 1-126-157-11 | ELECT 10MF 20% 16V | |
| R084 | 1-216-041-00 | METAL GLAZE 470 5% 1/10W | | C005 | 1-126-157-11 | ELECT 10MF 20% 16V | |
| R091 | 1-216-175-00 | METAL GLAZE 110 5% 1/8W | | C006 | 1-126-157-11 | ELECT 10MF 20% 16V | |
| R092 | 1-216-649-11 | METAL CHIP 820 0.50% 1/10W | | C007 | 1-163-141-00 | CERAMIC CHIP 0.001MF 5% 50V | |
| R101 | 1-216-013-00 | METAL GLAZE 33 5% 1/10W | | C008 | 1-126-157-11 | ELECT 10MF 20% 16V | |
| R102 | 1-216-013-00 | METAL GLAZE 33 5% 1/10W | | C009 | 1-164-232-11 | CERAMIC CHIP 0.01MF 50V | |
| R103 | 1-216-013-00 | METAL GLAZE 33 5% 1/10W | | C010 | 1-164-232-11 | CERAMIC CHIP 0.01MF 50V | |
| R104 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | | C011 | 1-126-157-11 | ELECT 10MF 20% 16V | |
| R105 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | | C012 | 1-126-157-11 | ELECT 10MF 20% 16V | |
| R106 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | | C013 | 1-163-127-00 | CERAMIC CHIP 270PF 5% 50V | |
| R108 | 1-216-097-00 | METAL GLAZE 100K 5% 1/10W | | C014 | 1-163-117-00 | CERAMIC CHIP 100PF 5% 50V | |
| R110 | 1-216-045-00 | METAL GLAZE 680 5% 1/10W | | C015 | 1-124-638-11 | ELECT 22MF 20% 6.3V | |
| R118 | 1-216-033-00 | METAL GLAZE 220 5% 1/10W | | C016 | 1-163-101-00 | CERAMIC CHIP 22PF 5% 50V | |
| R122 | 1-216-089-00 | METAL GLAZE 47K 5% 1/10W | | C017 | 1-126-157-11 | ELECT 10MF 20% 16V | |
| R151 | 1-216-053-00 | METAL GLAZE 1.5K 5% 1/10W | | C018 | 1-124-968-11 | ELECT 22MF 20% 6.3V | |
| R152 | 1-216-053-00 | METAL GLAZE 1.5K 5% 1/10W | | C019 | 1-126-157-11 | ELECT 10MF 20% 16V | |
| R154 | 1-216-053-00 | METAL GLAZE 1.5K 5% 1/10W | | C020 | 1-163-033-00 | CERAMIC CHIP 0.022MF 50V | |
| R155 | 1-216-053-00 | METAL GLAZE 1.5K 5% 1/10W | | C021 | 1-163-133-00 | CERAMIC CHIP 470PF 5% 50V | |
| R180 | 1-216-033-00 | METAL GLAZE 220 5% 1/10W | | C022 | 1-163-131-00 | CERAMIC CHIP 390PF 5% 50V | |
| R201 | 1-216-089-00 | METAL GLAZE 47K 5% 1/10W | | C024 | 1-163-038-00 | CERAMIC CHIP 0.1MF 25V | |
| R202 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | | | | | |
| R205 | 1-216-053-00 | METAL GLAZE 1.5K 5% 1/10W | | | | | |

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|--------|--------------|-----------------------|------------|--------|--------------|-----------------------|------------|
| C025 | 1-163-133-00 | CERAMIC CHIP 470PF | 5% 50V | C211 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V |
| C026 | 1-163-099-00 | CERAMIC CHIP 18PF | 5% 50V | C212 | 1-163-123-00 | CERAMIC CHIP 180PF | 5% 50V |
| C027 | 1-163-125-00 | CERAMIC CHIP 220PF | 5% 50V | C213 | 1-163-116-00 | CERAMIC CHIP 91PF | 5% 50V |
| C031 | 1-163-103-00 | CERAMIC CHIP 27PF | 5% 50V | C214 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% 50V |
| C033 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% 50V | C253 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 10% 50V |
| C034 | 1-126-157-11 | ELECT 10MF | 20% 16V | C254 | 1-163-119-00 | CERAMIC CHIP 120PF | 5% 50V |
| C035 | 1-126-157-11 | ELECT 10MF | 20% 16V | C255 | 1-163-127-00 | CERAMIC CHIP 270PF | 5% 50V |
| C037 | 1-126-157-11 | ELECT 10MF | 20% 16V | C256 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V |
| C039 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 50V | C257 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 10% 50V |
| C040 | 1-163-091-00 | CERAMIC CHIP 8PF | 0.25PF 50V | C258 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 10% 50V |
| C041 | 1-163-103-00 | CERAMIC CHIP 27PF | 5% 50V | C259 | 1-163-095-00 | CERAMIC CHIP 12PF | 5% 50V |
| C042 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V | C260 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V |
| C043 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V | C262 | 1-163-111-00 | CERAMIC CHIP 56PF | 5% 50V |
| C045 | 1-124-465-00 | ELECT 0.47MF | 20% 50V | C263 | 1-163-111-00 | CERAMIC CHIP 56PF | 5% 50V |
| C046 | 1-126-157-11 | ELECT 10MF | 20% 16V | C264 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C047 | 1-124-465-00 | ELECT 0.47MF | 20% 50V | C267 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% 50V |
| C048 | 1-163-121-00 | CERAMIC CHIP 150PF | 5% 50V | C268 | 1-163-133-00 | CERAMIC CHIP 470PF | 5% 50V |
| C049 | 1-126-301-11 | ELECT 1MF | 20% 50V | C270 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V |
| C050 | 1-126-301-11 | ELECT 1MF | 20% 50V | C271 | 1-164-161-11 | CERAMIC CHIP 0.0022MF | 10% 50V |
| C051 | 1-126-157-11 | ELECT 10MF | 20% 16V | C274 | 1-126-157-11 | ELECT 10MF | 20% 16V |
| C052 | 1-126-157-11 | ELECT 10MF | 20% 16V | C275 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V |
| C053 | 1-126-157-11 | ELECT 10MF | 20% 16V | C276 | 1-163-088-00 | CERAMIC CHIP 5PF | 0.25PF 50V |
| C054 | 1-126-157-11 | ELECT 10MF | 20% 16V | C277 | 1-163-105-00 | CERAMIC CHIP 33PF | 5% 50V |
| C055 | 1-126-157-11 | ELECT 10MF | 20% 16V | C300 | 1-163-097-00 | CERAMIC CHIP 15PF | 5% 50V |
| C056 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 50V | C315 | 1-163-123-00 | CERAMIC CHIP 180PF | 5% 50V |
| C057 | 1-163-125-00 | CERAMIC CHIP 220PF | 5% 50V | C316 | 1-124-589-11 | ELECT 47MF | 20% 16V |
| C060 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V | C317 | 1-124-589-11 | ELECT 47MF | 20% 16V |
| C061 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V | C320 | 1-163-115-00 | CERAMIC CHIP 82PF | 5% 50V |
| C101 | 1-126-160-11 | ELECT 1MF | 20% 50V | C321 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C102 | 1-124-463-00 | ELECT 0.1MF | 20% 50V | C402 | 1-163-093-00 | CERAMIC CHIP 10PF | 5% 50V |
| C103 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V | C403 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% 50V |
| C104 | 1-124-239-00 | ELECT 6.8MF | 20% 10V | C404 | 1-126-301-11 | ELECT 1MF | 20% 50V |
| C105 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V | C405 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V |
| C106 | 1-126-160-11 | ELECT 1MF | 20% 50V | C406 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% 50V |
| C107 | 1-124-239-00 | ELECT 6.8MF | 20% 10V | C407 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V |
| C109 | 1-126-160-11 | ELECT 1MF | 20% 50V | C408 | 1-126-163-11 | ELECT 4.7MF | 20% 35V |
| C110 | 1-126-160-11 | ELECT 1MF | 20% 50V | C409 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V |
| C111 | 1-126-160-11 | ELECT 1MF | 20% 50V | C410 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V |
| C112 | 1-124-239-00 | ELECT 6.8MF | 20% 10V | C411 | 1-126-157-11 | ELECT 10MF | 20% 16V |
| C113 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 50V | C412 | 1-163-118-00 | CERAMIC CHIP 110PF | 5% 50V |
| C114 | 1-126-160-11 | ELECT 1MF | 20% 50V | C413 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% 50V |
| C115 | 1-126-160-11 | ELECT 1MF | 20% 50V | C414 | 1-126-163-11 | ELECT 4.7MF | 20% 35V |
| C116 | 1-126-160-11 | ELECT 1MF | 20% 50V | C415 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% 50V |
| C117 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 50V | C416 | 1-163-131-00 | CERAMIC CHIP 390PF | 5% 50V |
| C200 | 1-126-157-11 | ELECT 10MF | 20% 16V | C500 | 1-126-157-11 | ELECT 10MF | 20% 16V |
| C201 | 1-126-157-11 | ELECT 10MF | 20% 16V | C501 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 50V |
| C202 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 50V | C502 | 1-124-465-00 | ELECT 0.47MF | 20% 50V |
| C204 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% 50V | C503 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 50V |
| C205 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V | C504 | 1-126-157-11 | ELECT 10MF | 20% 16V |
| C206 | 1-163-115-00 | CERAMIC CHIP 82PF | 5% 50V | C507 | 1-126-157-11 | ELECT 10MF | 20% 16V |
| C207 | 1-164-182-11 | CERAMIC CHIP 0.0033MF | 10% 50V | C508 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C209 | 1-163-107-00 | CERAMIC CHIP 39PF | 5% 50V | C509 | 1-124-254-00 | ELECT 0.68MF | 20% 50V |
| C210 | 1-163-097-00 | CERAMIC CHIP 15PF | 5% 50V | C510 | 1-124-257-00 | ELECT 2.2MF | 20% 50V |



When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|------------------------|---------------|---------------------------|----------|--------|--------------|------------------------|--------|
| C511 | 1-126-157-11 | ELECT 10MF | 20% 16V | JR006 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| C512 | 1-126-176-11 | ELECT 220MF | 20% 6.3V | JR007 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| C513 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V | JR008 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| C514 | 1-126-157-11 | ELECT 10MF | 20% 16V | JR009 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| C515 | 1-124-589-11 | ELECT 47MF | 20% 10V | JR010 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| C516 | 1-124-471-00 | ELECT 1000MF | 20% 6.3V | JR011 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| C625 | 1-127-515-11 | ELECT(SOLID) 47MF | 20% 6.3V | JR012 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| <u>CONNECTOR</u> | | | | JR013 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| CN001 | 1-568-074-11 | CONNECTOR (RECEPTALE) 10P | | JR014 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| CN002 | 1-568-078-11 | CONNECTOR (RECEPTALE) 18P | | JR015 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| CN003 | 1-506-472-11 | PIN, CONNECTOR 7P | | JR016 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| CN006 | 1-506-471-11 | PIN, CONNECTOR 6P | | JR017 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| CN007 | 1-506-470-11 | PIN, CONNECTOR 5P | | JR018 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| CN101 | *1-564-317-11 | PIN, BOARD TO BOARD 5P | | JR019 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| CN102 | *1-564-317-11 | PIN, BOARD TO BOARD 5P | | JR020 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| <u>DIODE</u> | | | | JR021 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| D001 | 8-719-800-76 | DIODE 1SS226 | | JR022 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| D002 | 8-719-400-18 | DIODE MA152WK | | JR023 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| D250 | 8-719-800-76 | DIODE 1SS226 | | JR024 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| D400 | 8-719-400-18 | DIODE MA152WK | | JR025 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| D401 | 8-719-400-18 | DIODE MA152WK | | JR026 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| D500 | 8-719-400-18 | DIODE MA152WK | | JR027 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| D501 | 8-719-400-18 | DIODE MA152WK | | JR028 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| <u>FILTER</u> | | | | JR029 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| FL001 | 1-409-480-11 | FILTER, TRAP | | JR030 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| FL002 | 1-236-948-11 | FILTER, LOW PASS | | JR031 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| FL003 | 1-577-162-11 | FILTER, CERAMIC | | JR032 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| FL101 | 1-236-058-21 | ENCAPSULATED COMPONENT | | JR033 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| FL102 | 1-236-058-21 | ENCAPSULATED COMPONENT | | JR034 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| FL103 | 1-236-058-21 | ENCAPSULATED COMPONENT | | JR035 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| FL104 | 1-236-058-21 | ENCAPSULATED COMPONENT | | JR036 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| FL105 | 1-236-058-21 | ENCAPSULATED COMPONENT | | JR037 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| FL106 | 1-236-058-21 | ENCAPSULATED COMPONENT | | JR038 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| FL107 | 1-236-058-21 | ENCAPSULATED COMPONENT | | JR039 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| FL108 | 1-236-058-21 | ENCAPSULATED COMPONENT | | JR040 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| FL109 | 1-236-058-21 | ENCAPSULATED COMPONENT | | JR041 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| <u>IC</u> | | | | JR042 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| IC001 | 8-752-034-40 | IC CXA1200BQ | | JR043 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| IC100 | 8-752-324-87 | IC CXL1502M | | JR044 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| IC400 | 8-752-033-86 | IC CXA1203M | | JR045 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| IC500 | 8-752-033-40 | IC CXA1201Q | | JR046 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| <u>JUMPER RESISTOR</u> | | | | JR047 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| JR001 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | | JR048 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| JR002 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | | JR049 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| JR003 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | | JR050 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| JR004 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | | JR051 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| JR005 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | | JR052 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| | | | | JR053 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| | | | | JR054 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| | | | | JR055 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| | | | | JR056 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| | | | | JR057 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |
| | | | | JR058 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | |

When indicating parts by reference number, please include the board name.

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| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|-------------|--------------|---------------|------------|-------------------|--------------|--------------------|----------|
| JR059 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | L204 | 1-408-987-21 | INDUCTOR | 330UH |
| JR060 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | L205 | 1-408-983-21 | INDUCTOR | 120UH |
| JR061 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | L253 | 1-408-963-11 | INDUCTOR | 2.7UH |
| JR062 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | L254 | 1-408-985-21 | INDUCTOR | 180UH |
| JR063 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | L255 | 1-408-976-21 | INDUCTOR | 33UH |
| JR064 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | L257 | 1-408-970-21 | INDUCTOR | 10UH |
| JR065 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | L259 | 1-408-987-21 | INDUCTOR | 330UH |
| JR066 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | L260 | 1-407-169-XX | INDUCTOR | 100UH |
| JR067 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | L261 | 1-408-989-21 | INDUCTOR | 470UH |
| JR068 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | L262 | 1-408-987-21 | INDUCTOR | 330UH |
| JR069 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | L304 | 1-408-981-21 | INDUCTOR | 82UH |
| JR070 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | L306 | 1-408-968-21 | INDUCTOR | 6.8UH |
| JR071 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | L400 | 1-408-978-21 | INDUCTOR | 47UH |
| JR072 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | L500 | 1-407-169-XX | INDUCTOR | 100UH |
| JR073 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | L501 | 1-407-169-XX | INDUCTOR | 100UH |
| JR074 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | <u>LEAD PIN</u> | | | |
| JR075 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | LP001 | 4-352-844-01 | PIN, LEAD, COATING | |
| JR076 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | LP002 | 4-352-844-01 | PIN, LEAD, COATING | |
| JR077 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | <u>IC LINK</u> | | | |
| JR078 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | PS300A | 1-532-605-00 | LINK, IC | |
| JR079 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | <u>TRANSISTOR</u> | | | |
| JR080 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | Q001 | 8-729-901-06 | TRANSISTOR | DTA144EK |
| JR081 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | Q003 | 8-729-100-66 | TRANSISTOR | 2SC1623 |
| JR082 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | Q004 | 8-729-100-66 | TRANSISTOR | 2SC1623 |
| JR083 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | Q005 | 8-729-100-66 | TRANSISTOR | 2SC1623 |
| JR084 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | Q006 | 8-729-100-66 | TRANSISTOR | 2SC1623 |
| JR085 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | Q007 | 8-729-901-01 | TRANSISTOR | DTC144EK |
| JR086 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | Q008 | 8-729-901-06 | TRANSISTOR | DTA144EK |
| JR087 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | Q009 | 8-729-100-66 | TRANSISTOR | 2SC1623 |
| JR088 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | Q010 | 8-729-100-66 | TRANSISTOR | 2SC1623 |
| JR089 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | Q011 | 8-729-216-22 | TRANSISTOR | 2SA1162 |
| JR090 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | Q012 | 8-729-100-66 | TRANSISTOR | 2SC1623 |
| JR091 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | Q013 | 8-729-100-66 | TRANSISTOR | 2SC1623 |
| JR092 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | Q014 | 8-729-216-22 | TRANSISTOR | 2SA1162 |
| JR094 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | Q015 | 8-729-100-66 | TRANSISTOR | 2SC1623 |
| JR095 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | Q019 | 8-729-100-66 | TRANSISTOR | 2SC1623 |
| JR096 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | Q020 | 8-729-100-66 | TRANSISTOR | 2SC1623 |
| JR097 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | Q021 | 8-729-901-01 | TRANSISTOR | DTC144EK |
| JR098 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | Q022 | 8-729-100-66 | TRANSISTOR | 2SC1623 |
| <u>COIL</u> | | | | Q023 | 8-729-216-22 | TRANSISTOR | 2SA1162 |
| L001 | 1-408-970-21 | INDUCTOR | 10UH | Q024 | 8-729-901-01 | TRANSISTOR | DTC144EK |
| L002 | 1-408-975-21 | INDUCTOR | 27UH | Q200 | 8-729-216-22 | TRANSISTOR | 2SA1162 |
| L003 | 1-408-978-21 | INDUCTOR | 47UH | Q201 | 8-729-901-01 | TRANSISTOR | DTC144EK |
| L004 | 1-408-974-21 | INDUCTOR | 22UH | Q202 | 8-729-216-22 | TRANSISTOR | 2SA1162 |
| L006 | 1-408-975-21 | INDUCTOR | 27UH | Q203 | 8-729-216-22 | TRANSISTOR | 2SA1162 |
| L007 | 1-408-976-21 | INDUCTOR | 33UH | Q204 | 8-729-100-66 | TRANSISTOR | 2SC1623 |
| L100 | 1-410-393-11 | INDUCTOR CHIP | 100UH | Q205 | 8-729-100-66 | TRANSISTOR | 2SC1623 |
| L101 | 1-410-393-11 | INDUCTOR CHIP | 100UH | Q251 | 8-729-100-66 | TRANSISTOR | 2SC1623 |
| L200 | 1-407-169-XX | INDUCTOR | 100UH | Q252 | 8-729-100-66 | TRANSISTOR | 2SC1623 |
| L201 | 1-408-984-21 | INDUCTOR | 150UH | Q254 | 8-729-901-06 | TRANSISTOR | DTA144EK |
| L202 | 1-407-169-XX | INDUCTOR | 100UH | | | | |
| L203 | 1-408-969-21 | INDUCTOR | 8.2UH | | | | |

Note: The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|-----------------|--------------|-----------------------------|--------|--------|--------------|---------------------------|--------|
| Q255 | 8-729-100-66 | TRANSISTOR 2SC1623 | | R035 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | |
| Q256 | 8-729-216-22 | TRANSISTOR 2SA1162 | | R036 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | |
| Q257 | 8-729-100-66 | TRANSISTOR 2SC1623 | | R037 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | |
| Q260 | 8-729-100-66 | TRANSISTOR 2SC1623 | | R038 | 1-216-045-00 | METAL GLAZE 680 5% 1/10W | |
| Q309 | 8-729-140-96 | TRANSISTOR 2SD774-34 | | R039 | 1-216-059-00 | METAL GLAZE 2.7K 5% 1/10W | |
| Q310 | 8-729-100-66 | TRANSISTOR 2SC1623 | | R040 | 1-216-035-00 | METAL GLAZE 270 5% 1/10W | |
| Q311 | 8-729-100-66 | TRANSISTOR 2SC1623 | | R041 | 1-216-063-00 | METAL GLAZE 3.9K 5% 1/10W | |
| Q312 | 8-729-100-66 | TRANSISTOR 2SC1623 | | R042 | 1-216-047-00 | METAL GLAZE 820 5% 1/10W | |
| Q313 | 8-729-100-66 | TRANSISTOR 2SC1623 | | R044 | 1-216-047-00 | METAL GLAZE 820 5% 1/10W | |
| Q400 | 8-729-901-01 | TRANSISTOR DTC144EK | | R045 | 1-216-113-00 | METAL GLAZE 470K 5% 1/10W | |
| Q401 | 8-729-901-01 | TRANSISTOR DTC144EK | | R046 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| Q402 | 8-729-901-01 | TRANSISTOR DTC144EK | | R047 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | |
| Q403 | 8-729-901-01 | TRANSISTOR DTC144EK | | R048 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | |
| Q404 | 8-729-901-06 | TRANSISTOR DTA144EK | | R049 | 1-216-025-00 | METAL GLAZE 100 5% 1/10W | |
| Q405 | 8-729-901-06 | TRANSISTOR DTA144EK | | R050 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | |
| Q500 | 8-729-901-01 | TRANSISTOR DTC144EK | | R051 | 1-216-029-00 | METAL GLAZE 150 5% 1/10W | |
| Q501 | 8-729-100-66 | TRANSISTOR 2SC1623 | | R052 | 1-216-121-00 | METAL GLAZE 1M 5% 1/10W | |
| Q502 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R053 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | |
| Q503 | 8-729-216-22 | TRANSISTOR 2SA1162 | | R056 | 1-216-069-00 | METAL GLAZE 6.8K 5% 1/10W | |
| Q900 | 8-729-901-01 | TRANSISTOR DTC144EK | | R059 | 1-216-067-00 | METAL GLAZE 5.6K 5% 1/10W | |
| Q901 | 8-729-216-22 | TRANSISTOR 2SA1162 | | R062 | 1-216-041-00 | METAL GLAZE 470 5% 1/10W | |
| <u>RESISTOR</u> | | | | R064 | 1-216-053-00 | METAL GLAZE 1.5K 5% 1/10W | |
| R001 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | | R065 | 1-216-021-00 | METAL GLAZE 68 5% 1/10W | |
| R002 | 1-216-051-00 | METAL GLAZE 1.2K 5% 1/10W | | R066 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | |
| R003 | 1-216-127-11 | METAL GLAZE 1.8M 5% 1/10W | | R067 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | |
| R004 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | | R068 | 1-216-083-00 | METAL GLAZE 27K 5% 1/10W | |
| R005 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | | R071 | 1-216-121-00 | METAL GLAZE 1M 5% 1/10W | |
| R006 | 1-216-081-00 | METAL GLAZE 22K 5% 1/10W | | R072 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | |
| R008 | 1-216-095-00 | METAL GLAZE 82K 5% 1/10W | | R073 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | |
| R009 | 1-216-663-11 | METAL CHIP 3.3K 0.50% 1/10W | | R074 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | |
| R012 | 1-216-051-00 | METAL GLAZE 1.2K 5% 1/10W | | R075 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | |
| R013 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | | R076 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | |
| R016 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | | R077 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | |
| R017 | 1-216-031-00 | METAL GLAZE 180 5% 1/10W | | R078 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | |
| R018 | 1-216-033-00 | METAL GLAZE 220 5% 1/10W | | R079 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | |
| R019 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | | R080 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | |
| R020 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | | R081 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | |
| R021 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | | R082 | 1-216-051-00 | METAL GLAZE 1.2K 5% 1/10W | |
| R022 | 1-216-079-00 | METAL GLAZE 18K 5% 1/10W | | R100 | 1-216-121-00 | METAL GLAZE 1M 5% 1/10W | |
| R023 | 1-216-079-00 | METAL GLAZE 18K 5% 1/10W | | R101 | 1-216-029-00 | METAL GLAZE 150 5% 1/10W | |
| R024 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | | R102 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R025 | 1-216-081-00 | METAL GLAZE 22K 5% 1/10W | | R103 | 1-216-053-00 | METAL GLAZE 1.5K 5% 1/10W | |
| R026 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | | R104 | 1-216-053-00 | METAL GLAZE 1.5K 5% 1/10W | |
| R027 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | | R105 | 1-216-053-00 | METAL GLAZE 1.5K 5% 1/10W | |
| R028 | 1-216-651-11 | METAL CHIP 1K 0.50% 1/10W | | R106 | 1-216-121-00 | METAL GLAZE 1M 5% 1/10W | |
| R029 | 1-216-643-11 | METAL CHIP 470 0.50% 1/10W | | R107 | 1-216-121-00 | METAL GLAZE 1M 5% 1/10W | |
| R030 | 1-216-041-00 | METAL GLAZE 470 5% 1/10W | | R108 | 1-216-121-00 | METAL GLAZE 1M 5% 1/10W | |
| R031 | 1-216-045-00 | METAL GLAZE 680 5% 1/10W | | R109 | 1-216-027-00 | METAL GLAZE 120 5% 1/10W | |
| R032-A | 1-216-041-00 | METAL GLAZE 470 5% 1/10W | | R110 | 1-216-051-00 | METAL GLAZE 1.2K 5% 1/10W | |
| R032-B | 1-216-081-00 | METAL GLAZE 22K 5% 1/10W | | R111 | 1-216-053-00 | METAL GLAZE 1.5K 5% 1/10W | |
| R033 | 1-216-059-00 | METAL GLAZE 2.7K 5% 1/10W | | R200 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R034 | 1-216-071-00 | METAL GLAZE 8.2K 5% 1/10W | | R201 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| | | | | R203 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | |

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|--------|--------------|---------------------|--------|--------------------------|--------------|-----------------------|--------|
| R204 | 1-216-043-00 | METAL GLAZE 560 5% | 1/10W | R355 | 1-216-059-00 | METAL GLAZE 2.7K 5% | 1/10W |
| R205 | 1-216-065-00 | METAL GLAZE 4.7K 5% | 1/10W | R356 | 1-216-077-00 | METAL GLAZE 15K 5% | 1/10W |
| R206 | 1-216-057-00 | METAL GLAZE 2.2K 5% | 1/10W | R357 | 1-216-067-00 | METAL GLAZE 5.6K 5% | 1/10W |
| R207 | 1-216-043-00 | METAL GLAZE 560 5% | 1/10W | R400 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| R208 | 1-216-025-00 | METAL GLAZE 100 5% | 1/10W | R401 | 1-216-097-00 | METAL GLAZE 100K 5% | 1/10W |
| R209 | 1-216-041-00 | METAL GLAZE 470 5% | 1/10W | R402 | 1-216-097-00 | METAL GLAZE 100K 5% | 1/10W |
| R210 | 1-216-041-00 | METAL GLAZE 470 5% | 1/10W | R403 | 1-216-097-00 | METAL GLAZE 100K 5% | 1/10W |
| R211 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W | R405 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R212 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W | R406 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R213 | 1-216-063-00 | METAL GLAZE 3.9K 5% | 1/10W | R407 | 1-216-065-00 | METAL GLAZE 4.7K 5% | 1/10W |
| R214 | 1-216-043-00 | METAL GLAZE 560 5% | 1/10W | R408 | 1-216-097-00 | METAL GLAZE 100K 5% | 1/10W |
| R215 | 1-216-043-00 | METAL GLAZE 560 5% | 1/10W | R409 | 1-216-295-00 | METAL GLAZE 0 5% | 1/10W |
| R250 | 1-216-029-00 | METAL GLAZE 150 5% | 1/10W | R410 | 1-216-699-11 | METAL CHIP 100K 0.50% | 1/10W |
| R254 | 1-216-071-00 | METAL GLAZE 8.2K 5% | 1/10W | R411 | 1-216-057-00 | METAL GLAZE 2.2K 5% | 1/10W |
| R256 | 1-216-047-00 | METAL GLAZE 820 5% | 1/10W | R412 | 1-216-065-00 | METAL GLAZE 4.7K 5% | 1/10W |
| R257 | 1-216-043-00 | METAL GLAZE 560 5% | 1/10W | R413 | 1-216-061-00 | METAL GLAZE 3.3K 5% | 1/10W |
| R258 | 1-216-081-00 | METAL GLAZE 22K 5% | 1/10W | R414 | 1-216-065-00 | METAL GLAZE 4.7K 5% | 1/10W |
| R259 | 1-216-075-00 | METAL GLAZE 12K 5% | 1/10W | R500 | 1-216-081-00 | METAL GLAZE 22K 5% | 1/10W |
| R260 | 1-216-033-00 | METAL GLAZE 220 5% | 1/10W | R501 | 1-216-074-00 | METAL GLAZE 11K 5% | 1/10W |
| R261 | 1-216-021-00 | METAL GLAZE 68 5% | 1/10W | R506 | 1-216-699-11 | METAL CHIP 100K 0.50% | 1/10W |
| R262 | 1-216-055-00 | METAL GLAZE 1.8K 5% | 1/10W | R507 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| R263 | 1-216-053-00 | METAL GLAZE 1.5K 5% | 1/10W | R508 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R264 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W | R509 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R265 | 1-216-081-00 | METAL GLAZE 22K 5% | 1/10W | R510 | 1-216-022-00 | METAL GLAZE 75 5% | 1/10W |
| R266 | 1-216-081-00 | METAL GLAZE 22K 5% | 1/10W | R511 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R267 | 1-216-057-00 | METAL GLAZE 2.2K 5% | 1/10W | R512 | 1-216-295-00 | METAL GLAZE 0 5% | 1/10W |
| R268 | 1-216-039-00 | METAL GLAZE 390 5% | 1/10W | R513 | 1-216-121-00 | METAL GLAZE 1M 5% | 1/10W |
| R269 | 1-216-053-00 | METAL GLAZE 1.5K 5% | 1/10W | R516 | 1-216-020-00 | METAL GLAZE 62 5% | 1/10W |
| R270 | 1-216-295-00 | METAL GLAZE 0 5% | 1/10W | R517 | 1-249-406-11 | CARBON 120 5% | 1/4W |
| R271 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W | R518 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R274 | 1-216-055-00 | METAL GLAZE 1.8K 5% | 1/10W | R901 | 1-216-065-00 | METAL GLAZE 4.7K 5% | 1/10W |
| R275 | 1-216-033-00 | METAL GLAZE 220 5% | 1/10W | R902 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| R276 | 1-216-057-00 | METAL GLAZE 2.2K 5% | 1/10W | <u>VARIABLE RESISTOR</u> | | | |
| R277 | 1-216-295-00 | METAL GLAZE 0 5% | 1/10W | RV001 | 1-228-994-00 | RES, ADJ, CARBON 10K | |
| R282 | 1-216-051-00 | METAL GLAZE 1.2K 5% | 1/10W | RV002 | 1-228-996-00 | RES, ADJ, CARBON 47K | |
| R283 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W | RV003 | 1-228-991-00 | RES, ADJ, CARBON 2.2K | |
| R284 | 1-216-081-00 | METAL GLAZE 22K 5% | 1/10W | RV004 | 1-228-991-00 | RES, ADJ, CARBON 2.2K | |
| R285 | 1-216-085-00 | METAL GLAZE 33K 5% | 1/10W | RV005 | 1-228-993-00 | RES, ADJ, CARBON 4.7K | |
| R286 | 1-216-041-00 | METAL GLAZE 470 5% | 1/10W | RV006 | 1-228-990-00 | RES, ADJ, CARBON 1K | |
| R287 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W | RV007 | 1-228-990-00 | RES, ADJ, CARBON 1K | |
| R288 | 1-216-295-00 | METAL GLAZE 0 5% | 1/10W | RV200 | 1-228-993-00 | RES, ADJ, CARBON 4.7K | |
| R290 | 1-216-037-00 | METAL GLAZE 330 5% | 1/10W | RV201 | 1-228-990-00 | RES, ADJ, CARBON 1K | |
| R300 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W | RV402 | 1-228-993-00 | RES, ADJ, CARBON 4.7K | |
| R303 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W | RV403 | 1-228-994-00 | RES, ADJ, CARBON 10K | |
| R335 | 1-216-055-00 | METAL GLAZE 1.8K 5% | 1/10W | RV500 | 1-228-996-00 | RES, ADJ, CARBON 47K | |
| R337 | 1-216-295-00 | METAL GLAZE 0 5% | 1/10W | <u>COIL</u> | | | |
| R338 | 1-216-048-00 | METAL GLAZE 910 5% | 1/10W | T200 | 1-409-466-11 | TRAP | |
| R339 | 1-216-295-00 | METAL GLAZE 0 5% | 1/10W | <u>CRYSTAL</u> | | | |
| R350 | 1-216-057-00 | METAL GLAZE 2.2K 5% | 1/10W | X001 | 1-577-117-11 | VIBRATOR, CRYSTAL | |
| R351 | 1-216-067-00 | METAL GLAZE 5.6K 5% | 1/10W | | | | |
| R352 | 1-216-039-00 | METAL GLAZE 390 5% | 1/10W | | | | |
| R353 | 1-216-061-00 | METAL GLAZE 3.3K 5% | 1/10W | | | | |
| R354 | 1-216-057-00 | METAL GLAZE 2.2K 5% | 1/10W | | | | |

When indicating parts by reference number, please include the board name.

PI-24

RM-44

IN-41

Ref.No Part No. Description Remark
 *A-7062-471-A PI-24 (P) BOARD, COMPLETE (Ref.No 4,000 Series)

CAPACITOR

| Ref.No | Part No. | Description | Remark |
|--------|--------------|-----------------------|---------|
| C102 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% 50V |
| C103 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% 50V |
| C104 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% 50V |
| C105 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% 50V |
| C106 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% 50V |
| C107 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% 50V |
| C108 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% 50V |
| C109 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% 50V |
| C110 | 1-163-011-11 | CERAMIC CHIP 0.0015MF | 10% 50V |

CONNECTOR

CN103 1-506-481-11 PIN, CONNECTOR 2P

JACK

CNJ101 1-561-534-41 SOCKET 21P
 CNJ102 1-563-304-21 JACK BLOCK, PIN 4P

DIODE

| Ref.No | Part No. | Description | Remark |
|--------|--------------|-----------------|--------|
| D101 | 8-719-106-80 | DIODE RD13M-B2 | |
| D102 | 8-719-105-32 | DIODE RD2.7M-B2 | |
| D103 | 8-719-106-43 | DIODE RD9.1M-B1 | |
| D104 | 8-719-106-43 | DIODE RD9.1M-B1 | |
| D105 | 8-719-106-43 | DIODE RD9.1M-B1 | |
| D106 | 8-719-106-43 | DIODE RD9.1M-B1 | |
| D107 | 8-719-106-43 | DIODE RD9.1M-B1 | |
| D108 | 8-719-106-43 | DIODE RD9.1M-B1 | |
| D109 | 8-719-106-43 | DIODE RD9.1M-B1 | |
| D110 | 8-719-106-43 | DIODE RD9.1M-B1 | |

| Ref.No | Part No. | Description | Remark |
|--------|--------------|-----------------|--------|
| D111 | 8-719-106-43 | DIODE RD9.1M-B1 | |
| D112 | 8-719-106-43 | DIODE RD9.1M-B1 | |
| D113 | 8-719-106-43 | DIODE RD9.1M-B1 | |
| D114 | 8-719-106-43 | DIODE RD9.1M-B1 | |
| D115 | 8-719-106-43 | DIODE RD9.1M-B1 | |

D116 8-719-106-43 DIODE RD9.1M-B1

JUMPER RESISTOR

| Ref.No | Part No. | Description | Remark |
|--------|--------------|---------------|----------|
| JR004 | 1-216-295-00 | METAL GLAZE 0 | 5% 1/10W |
| JR005 | 1-216-295-00 | METAL GLAZE 0 | 5% 1/10W |
| JR006 | 1-216-295-00 | METAL GLAZE 0 | 5% 1/10W |
| JR007 | 1-216-295-00 | METAL GLAZE 0 | 5% 1/10W |
| JR008 | 1-216-295-00 | METAL GLAZE 0 | 5% 1/10W |

| Ref.No | Part No. | Description | Remark |
|--------|--------------|---------------|----------|
| JR009 | 1-216-295-00 | METAL GLAZE 0 | 5% 1/10W |
| JR010 | 1-216-295-00 | METAL GLAZE 0 | 5% 1/10W |
| JR011 | 1-216-295-00 | METAL GLAZE 0 | 5% 1/10W |

TRANSISTOR

| Ref.No | Part No. | Description | Remark |
|--------|--------------|---------------------|--------|
| Q101 | 8-729-901-06 | TRANSISTOR DTA144EK | |
| Q102 | 8-729-901-01 | TRANSISTOR DTC144EK | |

Ref.No Part No. Description Remark

RESISTOR

| Ref.No | Part No. | Description | Remark |
|--------|--------------|------------------|----------|
| R101 | 1-216-045-00 | METAL GLAZE 680 | 5% 1/10W |
| R102 | 1-216-057-00 | METAL GLAZE 2.2K | 5% 1/10W |
| R103 | 1-216-295-00 | METAL GLAZE 0 | 5% 1/10W |
| R104 | 1-216-043-00 | METAL GLAZE 560 | 5% 1/10W |
| R105 | 1-216-077-00 | METAL GLAZE 15K | 5% 1/10W |

| Ref.No | Part No. | Description | Remark |
|--------|--------------|-----------------|----------|
| R106 | 1-216-025-00 | METAL GLAZE 100 | 5% 1/10W |
| R107 | 1-216-025-00 | METAL GLAZE 100 | 5% 1/10W |
| R108 | 1-216-025-00 | METAL GLAZE 100 | 5% 1/10W |
| R109 | 1-216-025-00 | METAL GLAZE 100 | 5% 1/10W |
| R110 | 1-216-015-00 | METAL GLAZE 39 | 5% 1/10W |

R111 1-216-015-00 METAL GLAZE 39 5% 1/10W

*1-636-978-11 RM-44 BOARD (Ref.No 4,000 Series)

CAPACITOR

C201 1-163-809-11 CERAMIC CHIP 0.047MF 10% 25V

CONNECTOR

CN202 1-506-468-11 PIN, CONNECTOR 3P

DIODE

| Ref.No | Part No. | Description | Remark |
|--------|--------------|-----------------|--------|
| D202 | 8-719-106-43 | DIODE RD9.1M-B1 | |
| D203 | 8-719-106-43 | DIODE RD9.1M-B1 | |

JACK

J201 1-562-732-11 SOCKET 5P (CONTROL L)

JUMPER RESISTOR

| Ref.No | Part No. | Description | Remark |
|--------|--------------|---------------|----------|
| JR001 | 1-216-295-00 | METAL GLAZE 0 | 5% 1/10W |
| JR002 | 1-216-295-00 | METAL GLAZE 0 | 5% 1/10W |
| JR003 | 1-216-295-00 | METAL GLAZE 0 | 5% 1/10W |

RESISTOR

R202 1-216-041-00 METAL GLAZE 470 5% 1/10W

SWITCH

SW202 1-553-725-21 SWITCH, SLIDE (LANC S/M)

*A-7062-473-A IN-41 (P) BOARD, COMPLETE (Ref.No 7,000 Series)

CAPACITOR

| Ref.No | Part No. | Description | Remark |
|--------|--------------|-------------|---------|
| C004 | 1-126-157-11 | ELECT 10MF | 20% 16V |
| C005 | 1-126-301-11 | ELECT 1MF | 20% 50V |
| C006 | 1-124-443-00 | ELECT 100MF | 20% 10V |
| C008 | 1-124-472-11 | ELECT 470MF | 20% 10V |

When indicating parts by reference number, please include the board name.

IN-41

AF-20

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|-------------------|---------------|-------------------------------|--------|---|--------------|-------------------------------|------------|
| C010 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V | R041 | 1-216-039-00 | METAL GLAZE 390 5% 1/10W | |
| C011 | 1-126-157-11 | ELECT 10MF 20% | 16V | R042 | 1-216-043-00 | METAL GLAZE 560 5% 1/10W | |
| <u>CONNECTOR</u> | | | | R043 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| CN001 | *1-506-773-11 | CONNECTOR, BOARD TO BOARD 10P | | R044 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | |
| CN002 | *1-506-773-11 | CONNECTOR, BOARD TO BOARD 10P | | ***** | | | |
| CN601 | *1-568-088-11 | CONNECTOR (PLUG) 10P | | *A-7062-474-A AF-20 (P) BOARD, COMPLETE (Ref.No 5,000 Series) | | | |
| CN602 | 1-568-092-11 | CONNECTOR (PLUG) 18P | | ***** | | | |
| CN603 | 1-506-469-11 | PIN, CONNECTOR 4P | | <u>CAPACITOR</u> | | | |
| CN604 | *1-563-607-11 | CONNECTOR, FLEXIBLE 30P | | C501 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V |
| CN701 | 1-506-472-11 | PIN, CONNECTOR 7P | | C502 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| CN702 | 1-506-474-11 | PIN, CONNECTOR 9P | | C503 | 1-163-007-11 | CERAMIC CHIP 680PF | 10% 50V |
| CN703 | *1-564-006-21 | PIN, CONNECTOR 7P | | C504 | 1-124-465-00 | ELECT 0.47MF | 20% 50V |
| CN704 | 1-506-468-11 | PIN, CONNECTOR 3P | | C505 | 1-163-011-11 | CERAMIC CHIP 0.0015MF | 10% 50V |
| CN705 | 1-506-470-11 | PIN, CONNECTOR 5P | | C506 | 1-163-016-00 | CERAMIC CHIP 0.0039MF | 10% 50V |
| CN706 | 1-506-468-11 | PIN, CONNECTOR 3P | | C507 | 1-163-125-00 | CERAMIC CHIP 220PF | 5% 50V |
| CN707 | 1-506-481-11 | PIN, CONNECTOR 2P | | C508 | 1-164-161-11 | CERAMIC CHIP 0.0022MF | 10% 50V |
| <u>FILTER</u> | | | | C509 | 1-126-177-11 | ELECT 100MF | 20% 6.3V |
| FL001 | 1-235-484-11 | FILTER, BAND PASS (1.5MHZ) | | C510 | 1-163-036-00 | CERAMIC CHIP 0.068MF | 50V |
| <u>COIL</u> | | | | C511 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V |
| L001 | 1-408-785-21 | INDUCTOR CHIP 47UH | | C512 | 1-124-257-00 | ELECT 2.2MF | 20% 50V |
| <u>TRANSISTOR</u> | | | | C513 | 1-126-154-11 | ELECT 47MF | 20% 6.3V |
| Q002 | 8-729-100-66 | TRANSISTOR 2SC1623 | | C514 | 1-126-163-11 | ELECT 4.7MF | 20% 25V |
| Q003 | 8-729-100-66 | TRANSISTOR 2SC1623 | | C515 | 1-163-133-00 | CERAMIC CHIP 470PF | 5% 50V |
| Q006 | 8-729-100-66 | TRANSISTOR 2SC1623 | | C516 | 1-126-177-11 | ELECT 100MF | 20% 6.3V |
| Q007 | 8-729-100-66 | TRANSISTOR 2SC1623 | | C517 | 1-163-088-00 | CERAMIC CHIP 5PF | 0.25PF 50V |
| Q008 | 8-729-100-66 | TRANSISTOR 2SC1623 | | C518 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% 50V |
| Q009 | 8-729-901-05 | TRANSISTOR DTA124EK | | C519 | 1-163-125-00 | CERAMIC CHIP 220PF | 5% 50V |
| <u>RESISTOR</u> | | | | C520 | 1-163-079-00 | CERAMIC CHIP 0.039MF | 10% 25V |
| R004 | 1-216-041-00 | METAL GLAZE 470 5% 1/10W | | C521 | 1-163-020-00 | CERAMIC CHIP 0.0082MF | 10% 50V |
| R005 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | | C522 | 1-163-007-11 | CERAMIC CHIP 680PF | 10% 50V |
| R006 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | | C523 | 1-126-160-11 | ELECT 1MF | 20% 50V |
| R007 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | | C524 | 1-126-157-11 | ELECT 10MF | 20% 16V |
| R008 | 1-216-071-00 | METAL GLAZE 8.2K 5% 1/10W | | C525 | 1-126-157-11 | ELECT 10MF | 20% 16V |
| R009 | 1-216-045-00 | METAL GLAZE 680 5% 1/10W | | C526 | 1-124-638-11 | ELECT 22MF | 20% 6.3V |
| R011 | 1-216-039-00 | METAL GLAZE 390 5% 1/10W | | C527 | 1-126-177-11 | ELECT 100MF | 20% 6.3V |
| R012 | 1-216-089-00 | METAL GLAZE 47K 5% 1/10W | | C529 | 1-126-301-11 | ELECT 1MF | 20% 50V |
| R014 | 1-216-063-00 | METAL GLAZE 3.9K 5% 1/10W | | C530 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V |
| R018 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | | C531 | 1-126-177-11 | ELECT 100MF | 20% 6.3V |
| R019 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | | C534 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% 50V |
| R020 | 1-216-059-00 | METAL GLAZE 2.7K 5% 1/10W | | C535 | 1-164-161-11 | CERAMIC CHIP 0.0022MF | 10% 50V |
| R021 | 1-216-099-00 | METAL GLAZE 120K 5% 1/10W | | C536 | 1-164-232-11 | CERAMIC CHIP 0.01MF | 50V |
| R022 | 1-216-097-00 | METAL GLAZE 100K 5% 1/10W | | C539 | 1-163-088-00 | CERAMIC CHIP 5PF | 0.25PF 50V |
| R023 | 1-216-051-00 | METAL GLAZE 1.2K 5% 1/10W | | <u>CONNECTOR</u> | | | |
| R026 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | | CN501 | 1-563-311-11 | CONNECTOR, BOARD TO BOARD 10P | |
| R028 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | | CN502 | 1-563-311-11 | CONNECTOR, BOARD TO BOARD 10P | |
| R031 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | | <u>IC</u> | | | |
| R040 | 1-216-071-00 | METAL GLAZE 8.2K 5% 1/10W | | IC501 | 8-752-013-71 | IC CX20137A | |

When indicating parts by reference number, please include the board name.

AF-20

FC-43

Ref.No Part No. Description Remark

COIL

L501 1-408-948-00 INDUCTOR 220UH

BOARD

PWB501*1-619-037-11 AF-20 BOARD

RESISTOR

R501 1-216-065-00 METAL GLAZE 4.7K 5% 1/10W
 R502 1-216-065-00 METAL GLAZE 4.7K 5% 1/10W
 R503 1-216-065-00 METAL GLAZE 4.7K 5% 1/10W
 R504 1-216-121-00 METAL GLAZE 1M 5% 1/10W
 R505 1-216-107-00 METAL GLAZE 270K 5% 1/10W

R506 1-249-416-11 CARBON 820 5% 1/4W
 R507 1-249-416-11 CARBON 820 5% 1/4W
 R508 1-216-097-00 METAL GLAZE 100K 5% 1/10W
 R509 1-216-075-00 METAL GLAZE 12K 5% 1/10W
 R510 1-216-063-00 METAL GLAZE 3.9K 5% 1/10W

R511 1-216-057-00 METAL GLAZE 2.2K 5% 1/10W
 R512 1-216-045-00 METAL GLAZE 680 5% 1/10W
 R513 1-216-059-00 METAL GLAZE 2.7K 5% 1/10W
 R514 1-216-061-00 METAL GLAZE 3.3K 5% 1/10W
 R515 1-216-061-00 METAL GLAZE 3.3K 5% 1/10W

R516 1-216-059-00 METAL GLAZE 2.7K 5% 1/10W
 R517 1-216-073-00 METAL GLAZE 10K 5% 1/10W
 R519 1-216-079-00 METAL GLAZE 18K 5% 1/10W
 R521 1-216-079-00 METAL GLAZE 18K 5% 1/10W
 R523 1-216-089-00 METAL GLAZE 47K 5% 1/10W

R524 1-216-083-00 METAL GLAZE 27K 5% 1/10W
 R525 1-216-079-00 METAL GLAZE 18K 5% 1/10W
 R527 1-216-058-00 METAL GLAZE 2.4K 5% 1/10W
 R528 1-216-059-00 METAL GLAZE 2.7K 5% 1/10W
 R530 1-216-049-00 METAL GLAZE 1K 5% 1/10W

R531 1-249-428-11 CARBON 8.2K 5% 1/4W

VARIABLE RESISTOR

RV503 1-228-994-00 RES, ADJ, CARBON 10K

*A-7062-475-A FC-43 (P) BOARD, COMPLETE (Ref.No 1,000
 ***** Series)

CAPACITOR

C801 1-164-232-11 CERAMIC CHIP 0.01MF 50V
 C802 1-163-033-00 CERAMIC CHIP 0.022MF 50V
 C803 1-163-033-00 CERAMIC CHIP 0.022MF 50V
 C804 1-163-033-00 CERAMIC CHIP 0.022MF 50V
 C805 1-164-232-11 CERAMIC CHIP 0.01MF 50V

C806 1-163-131-00 CERAMIC CHIP 390PF 5% 50V
 C807 1-163-033-00 CERAMIC CHIP 0.022MF 50V
 C808 1-164-182-11 CERAMIC CHIP 0.0033MF 10% 50V
 C809 1-163-038-00 CERAMIC CHIP 0.1MF 25V

Ref.No Part No. Description Remark

C810 1-163-038-00 CERAMIC CHIP 0.1MF 25V
 C811 1-164-232-11 CERAMIC CHIP 0.01MF 50V
 C812 1-163-038-00 CERAMIC CHIP 0.1MF 25V
 C813 1-126-157-11 ELECT 10MF 20% 16V
 C820 1-163-103-00 CERAMIC CHIP 27PF 5% 50V

DIODE

D801 8-719-118-21 DIODE 1SS283
 D802 8-719-118-21 DIODE 1SS283

DELAY LINE

DL801 1-415-593-11 DELAY LINE, ULTRASONIC GLASS

JUMPER RESISTOR

JR801 1-216-296-00 METAL GLAZE 0 5% 1/8W

COIL

L802 1-408-970-21 INDUCTOR 10UH
 L803 1-408-978-21 INDUCTOR 47UH
 L804 1-407-169-XX INDUCTOR 100UH

TRANSISTOR

Q801 8-729-100-66 TRANSISTOR 2SC1623
 Q802 8-729-100-66 TRANSISTOR 2SC1623
 Q803 8-729-100-66 TRANSISTOR 2SC1623
 Q804 8-729-100-66 TRANSISTOR 2SC1623
 Q805 8-729-100-66 TRANSISTOR 2SC1623

Q806 8-729-100-66 TRANSISTOR 2SC1623
 Q807 8-729-100-66 TRANSISTOR 2SC1623
 Q808 8-729-100-66 TRANSISTOR 2SC1623
 Q809 8-729-901-06 TRANSISTOR DTA144EK

RESISTOR

R801 1-216-081-00 METAL GLAZE 22K 5% 1/10W
 R802 1-216-081-00 METAL GLAZE 22K 5% 1/10W
 R803 1-216-057-00 METAL GLAZE 2.2K 5% 1/10W
 R804 1-216-033-00 METAL GLAZE 220 5% 1/10W
 R805 1-216-041-00 METAL GLAZE 470 5% 1/10W

R806 1-216-049-00 METAL GLAZE 1K 5% 1/10W
 R807 1-216-065-00 METAL GLAZE 4.7K 5% 1/10W
 R808 1-216-073-00 METAL GLAZE 10K 5% 1/10W
 R809 1-216-031-00 METAL GLAZE 180 5% 1/10W
 R810 1-216-043-00 METAL GLAZE 560 5% 1/10W

R811 1-216-041-00 METAL GLAZE 470 5% 1/10W
 R812 1-216-059-00 METAL GLAZE 2.7K 5% 1/10W
 R813 1-216-039-00 METAL GLAZE 390 5% 1/10W
 R814 1-216-081-00 METAL GLAZE 22K 5% 1/10W
 R815 1-216-085-00 METAL GLAZE 33K 5% 1/10W

R816 1-216-041-00 METAL GLAZE 470 5% 1/10W
 R817 1-216-049-00 METAL GLAZE 1K 5% 1/10W
 R818 1-216-027-00 METAL GLAZE 120 5% 1/10W
 R819 1-216-061-00 METAL GLAZE 3.3K 5% 1/10W
 R820 1-216-037-00 METAL GLAZE 330 5% 1/10W

When indicating parts by reference number, please include the board name.

FC-43

UC-3

CC-23

| Ref.No | Part No. | Description | Remark |
|--------|--------------|---------------------------|--------|
| R821 | 1-216-041-00 | METAL GLAZE 470 5% 1/10W | |
| R822 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| R823 | 1-216-037-00 | METAL GLAZE 330 5% 1/10W | |
| R824 | 1-216-047-00 | METAL GLAZE 820 5% 1/10W | |
| R825 | 1-216-077-00 | METAL GLAZE 15K 5% 1/10W | |
| R826 | 1-216-085-00 | METAL GLAZE 33K 5% 1/10W | |
| R827 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W | |
| R828 | 1-216-067-00 | METAL GLAZE 5.6K 5% 1/10W | |
| R829 | 1-216-067-00 | METAL GLAZE 5.6K 5% 1/10W | |

VARIABLE RESISTOR

RV801 1-228-993-00 RES, ADJ, CARBON 4.7K (LEVEL)

*1-628-908-11 UC-3 BOARD (Ref.No 3,000 Series)

CONNECTOR

CN001 1-566-529-11 CONNECTOR, FPC (ZIF) 13P
CN002 1-566-527-11 CONNECTOR, FPC (ZIF) 11P

JUMPER RESISTOR

| | | |
|-------|--------------|------------------------|
| JR001 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W |
| JR002 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W |
| JR003 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W |
| JR004 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W |
| JR005 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W |
| JR006 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W |
| JR008 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W |
| JR009 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W |
| JR010 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W |
| JR011 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W |
| JR012 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W |
| JR013 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W |
| JR019 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W |
| JR022 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W |
| JR023 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W |

CONNECTOR

W001 1-574-353-11 CABLE, FLAT (1.0MM PITCH) 18P

*1-628-694-21 CC-23 BOARD (Ref.No 2,600 Series)

CONNECTOR

CN001 *1-562-880-21 CONNECTOR, CARD EDGE 15P

CONNECTOR

W001 1-574-354-11 CABLE, FLAT (1.0MM PITCH) 15P

| Ref.No | Part No. | Description | Remark |
|--------|--------------|---------------------------------------|--------|
| | | MISCELLANEOUS ***** | |
| | 1-466-328-31 | MODULATOR, RF (RFU-2027) | |
| | 1-466-347-31 | MODULATOR, RF (RFU-2028) (UK MODEL) | |
| M902 | 8-835-331-01 | MOTOR, DC U-22A (CAPSTAN MOTOR) | |
| M903 | A-7040-160-A | MOTOR ASSY, THREADING (LOADING MOTOR) | |

ACCESSORIES AND PACKING MATERIALS

| Part No. | Description | Remark |
|---------------|--|--------|
| 1-465-590-11 | REMOTE COMMANDER (RMT-463) | |
| 1-551-513-00 | CORD ASSY, COAXIAL | |
| 1-558-032-11 | CORD, POWER (UK MODEL) | |
| 1-574-039-21 | CORD, CONNECTION | |
| 1-575-132-11 | CORD, POWER (AEP, E MODEL) | |
| 3-695-308-01 | DRIVER, VOLUME | |
| *3-704-282-01 | BAG (STANDARD), PROTECTION | |
| *3-735-224-31 | INDIVIDUAL CARTON | |
| *3-735-225-02 | CUSHION (LEFT) | |
| *3-735-226-02 | CUSHION (RIGHT) | |
| *3-735-228-01 | SPACER | |
| 3-750-104-11 | MANUAL, INSTRUCTION (ENGLISH) | |
| 3-750-104-41 | MANUAL, INSTRUCTION (AEP MODEL) (FRENCH/GERMAN/SPANISH) | |
| 3-750-104-51 | MANUAL, INSTRUCTION (AEP MODEL) (SWEDISH/DUTCH/ITALIAN) | |
| *3-940-469-01 | CASE, ACC | |

HARDWARE LIST

SCREW

7-621-772-20 SCREW +B 2X5
7-627-555-88 PRECISION SCREW +P 1.4X1.8
7-627-553-37 PRECISION SCREW +P 2X3 TYPE 3
7-627-553-47 PRECISION SCREW +P 2X4 TYPE 3
7-685-646-79 SCREW +BVTP 3X8 TYPE2 IT-3
7-685-646-79 SCREW +BVTP 3X8 TYPE2

Note: The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SECTION 8

MECHANICAL ADJUSTMENTS

For mechanical adjustments, refer to the separate "8mm Video Mechanical Adjustments Manual III (U mechanism)"

8-1. Tape pass adjustment

(Track shift)

Based on four types of pilot signals, the 8mm video system controls the tape transport speed instantaneously and uses ATF (Automatic Track Finding) to attain high-precision tracking. This makes a tracking adjustment control knob unnecessary. Accurate tracing has also been realized.

However, the ATF system has caused a problem in adjusting the tape pass system. The tape pass cannot be adjusted completely because the ATF automatically compensates even if the head's tracing fluctuates slightly.

Therefore, to do fine tracking adjustment, first switch to the track shift mode. Since the ATF is forced to operate and the tracking amount (approx. $\frac{1}{4}$) shifts to a constant amount, fine tracking adjustment can be easily done. A track shift jig is unnecessary.

8-1-1. Setting the track shift mode

- 1) Remove the soldering of the CM-13 board's pin ① A. Lift up the pin from the pattern and land.
- 2) Short the FR-38 boards CN109 pin ② to CN109 pin ① ③.
- 3) Switch to the test mode.

8-1-2. Preparation for adjustment

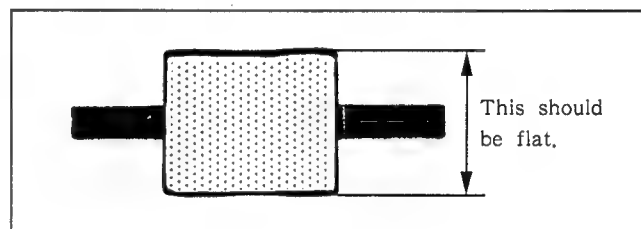
- 1) Clean the tape transport surfaces (tape guide, drum, capstan, and pinch roller).
- 2) Connection to an oscilloscope and waveform output.

1ch : The drum head's RF signal output CN006 pin ③ (V RF OUT)

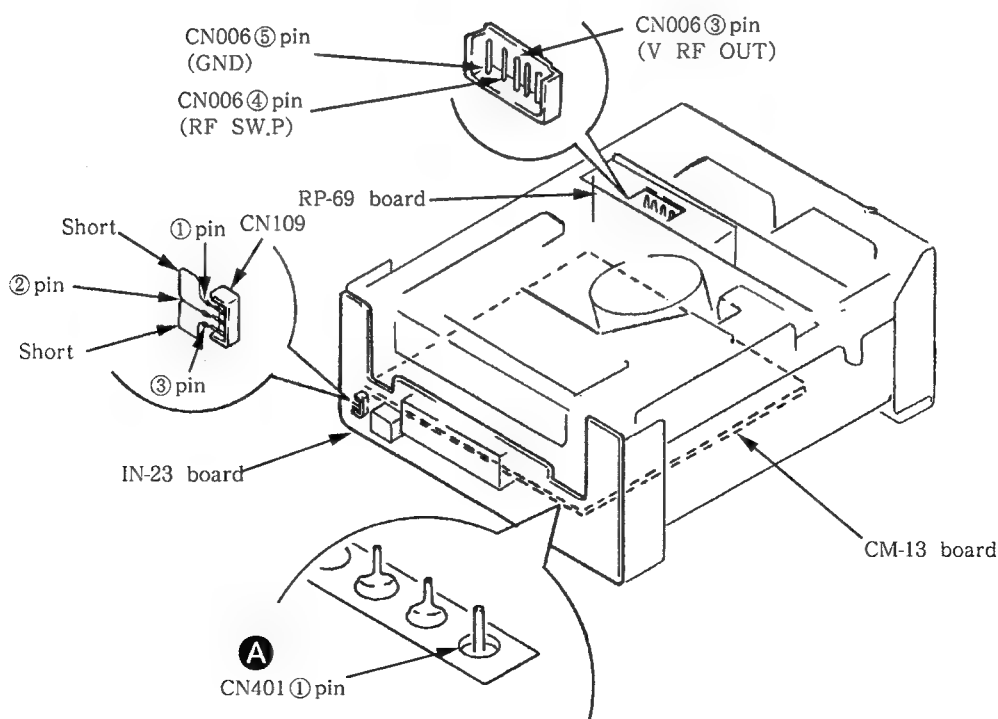
Output method : Connect the external trigger output CN006 pin ④ (RF SW. P) to CN006 pin ⑤ (GND).

- 3) Playback the tracking alignment tape (WR5-1N).
- 4) Check if the entry and exit sides of the oscilloscope's RF waveform are flat.

If they are not flat, make the adjustment by following the separately published U mechanical series mechanical adjustment manual.



- 5) After the adjustment is completed, solder the CM-13 board's CN401 pin ① A and remove from the FR-38 board's CN109.



SECTION 9

ELECTRICAL ADJUSTMENTS

9-1. PREPARATION FOR ELECTRICAL SECTION ADJUSTMENT

See adjusting elements location diagram on page 134 for the adjustments.

For electrical adjustment, use the following measuring instruments.

[Instruments to be used]

- 1) Monitor TV
- 2) Oscilloscope : 2 phenomena, band 10MHz or wider, with delay mode (Use probe 10 : 1 unless specified otherwise)
- 3) Frequency counter
- 4) Pattern generator with video output terminal
- 5) Digital voltmeter
- 6) Audio generator
- 7) Audio level meter
- 8) Audio distortion meter
- 9) Audio attenuator
- 10) Alignment tape

For tracking adjustment

(WR5-1C) Part code : 8-967-995-06

For video frequency characteristics adjustment

(WR5-2C) Part code : 8-967-995-16

For operation confirmation (SP mode)

(WR5-3CSP) Part code : 8-967-995-27

For operation confirmation (LP mode)

(WR5-3CL) Part code : 8-967-995-36

[Connection of the instruments]

Unless specified otherwise, perform the adjustment by connecting the measuring instruments as shown in the figure below.

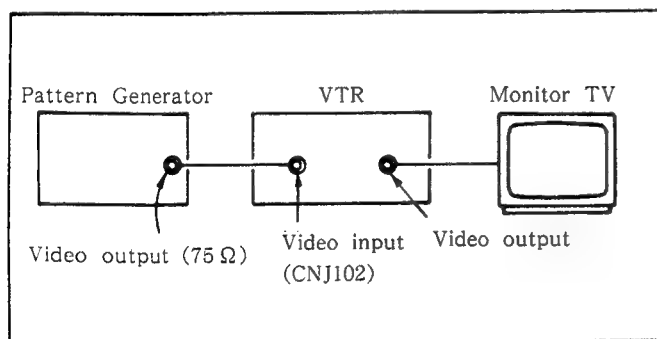


Fig. 9-1.

[Set-up for adjustment]

The video signal from the pattern generator is used as adjustment signal, so it must be within specifications. Connect the oscilloscope to CNJ102 on the PI-24 board (VIDEO IN) and confirm that amplitude of the video signal sync component is approx. 0.3V, amplitude of the video component approx. 0.7V, and amplitude of the burst component approx. 0.3V with a flat shape. Also confirm that the ratio between burst and red levels is 0.30 : 0.66.

The video (color bar) signal used for electrical adjustment is shown in Fig. 9-2.

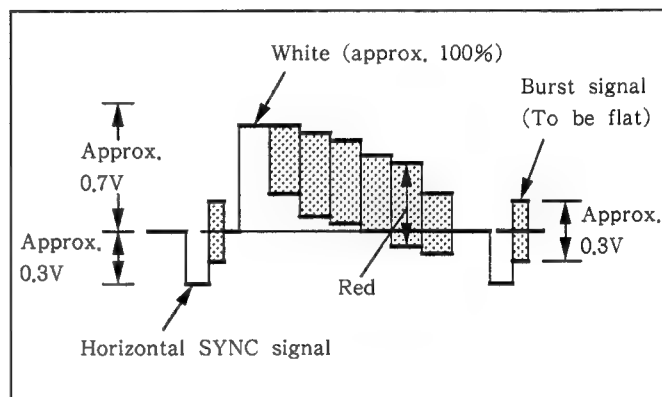


Fig. 9-2.

[Alignment tapes]

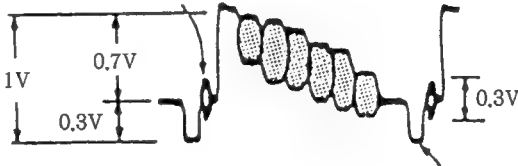
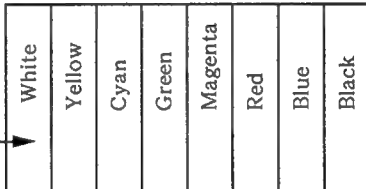
| Tape | Content | Use |
|--|--|-------------------------------|
| Tracking (WR5-1C) | 1. Recording area : PCM-video 2. Recording content : CH2: 1MHz linearity adjustment signal | Drum linearity adjustment |
| Video Frequency Response (WR5-2C) | 1. Recording area : Video 2. Recording content : RF sweep 0 to 10MHz 3. Maker : 1, 3.58, 5.5 and 7MHz | Frequency response adjustment |
| Operation Check SP mode (WR5-3CSP) LP mode (WR5-3CL) | <div>1. Recording area : Video</div> <div>2. Recording content :</div> <div>■ Video track</div> <div>• Video signals</div> <div>Color bars 10sec } Iterative</div> <div>Monoscope 8sec }</div> <div>(Color bars)</div> <div></div> <div>Horizontal SYNC signal</div> <div></div> <div>(100%)</div> <div>• Audio signals (AFM)</div> <div>400Hz 60% modulation</div> <div>■ PCM area (WR5-3CSP only)</div> <div>• Audio signals (PCM)</div> <div>1kHz 10sec } Iterative</div> <div>20Hz 2sec }</div> <div>400Hz 4sec }</div> <div>14kHz 2sec }</div> <div>Note : PCM area is not included in WR5-3CL</div> | Operation check |

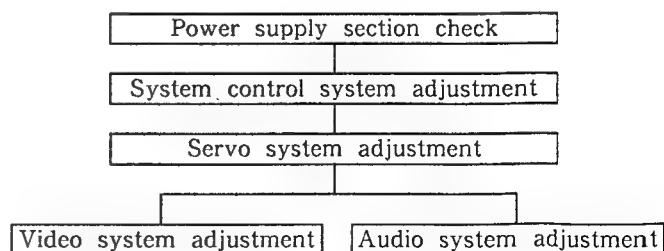
Fig. 9-3.

[Input/output level and impedance]

| | |
|--------------|--|
| Video input | Pin jack Input signal : 1Vp-p, 75 Ω unbalanced, negative sync |
| Video output | Pin jack and 21p EURO Output signal : 1Vp-p, 75 Ω unbalanced, negative sync |
| Audio input | Pin jack Input level : -10dBs (0dBs=0.775Vrms) Input impedance : 47k Ω or over |
| Audio output | Pin jack Specified output : -7.5dBs Output impedance : 2.2k Ω or less 21p EURO Specified output -6dBs Output impedance : 1k Ω or less |

[Adjustment order]

Perform the adjustment in the following order.



9-2. POWER SUPPLY VOLTAGE CHECK

Perform the measurement in playback mode.

1. UN 5.6V confirmation
Pin ⑤ of CN701(IN-41 board)should be $5.6 \pm 0.2\text{Vdc}$.
2. UN 9V confirmation
Pin ① of CN701 (IN-41 board) should be $9.3 \pm 1\text{Vdc}$.
3. SW 5V confirmation
Pin ⑥ of CN701(IN-41 board)should be $5.0 \pm 0.2\text{Vdc}$.
4. SW 9V confirmation
Pin ③ of CN701(IN-41 board)should be $9.0 \pm 0.3\text{Vdc}$.

9-3. SYSTEM CONTROL SYSTEM ADJUSTMENTS

9-3-1. Mode Control, LCD Drive Microcomputer Oscillator Confirmation (FR-38 Board)

| | |
|----------------------|---------------------------|
| Mode | E-E |
| Signal | Arbitrary |
| Measurement Point | Pin ④ of IC101 |
| Measuring Instrument | Frequency counter |
| Specified Value | $4.19 \pm 0.04\text{MHz}$ |

9-3-2. LINC MASTER Microcomputer Oscillator Confirmation (FR-38 Board)

| | |
|----------------------|-------------------------|
| Mode | E-E |
| Signal | Arbitrary |
| Measurement Point | Pin ⑥ of IC201 |
| Measuring Instrument | Frequency counter |
| Specified Value | $6 \pm 0.006\text{MHz}$ |

9-4. SERVO SYSTEM ADJUSTMENT

9-4-1. Oscillation Frequency Adjustment (CM-13 Board)

| | |
|----------------------|------------------------------|
| Mode | Recording |
| Signal | Arbitrary |
| Measurement Point | Pin ⑦ of IC502 |
| Measuring Instrument | Frequency counter |
| Adjusting Element | RV501 |
| Specified Value | $479.89 \pm 5.0 \text{ kHz}$ |

9-4-2. Switching Position Adjustment (CM-13 Board)

| | |
|----------------------|---|
| Mode | Playback |
| Signal | Alignment tape : For operation confirmation (WR5-3CSP) |
| Measurement Point | CH-1 : Pin ③ of IC201 (VIDEO OUT) CH-2 : Pin ⑩ of IC401 (RF SWP) |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV401 |
| Specified Value | $6.5 \pm 0.3 \text{ H}$ ($410 \pm 20 \mu \text{ sec}$) |

Adjusting method :

- 1) Short between Pin ③ and Pin ② on Board FR-38 CN109 (Test 2 mode).
- 2) Set to $6.5 \pm 0.3 \text{ H}$ ($410 \pm 20 \mu \text{ s}$) with RV401.

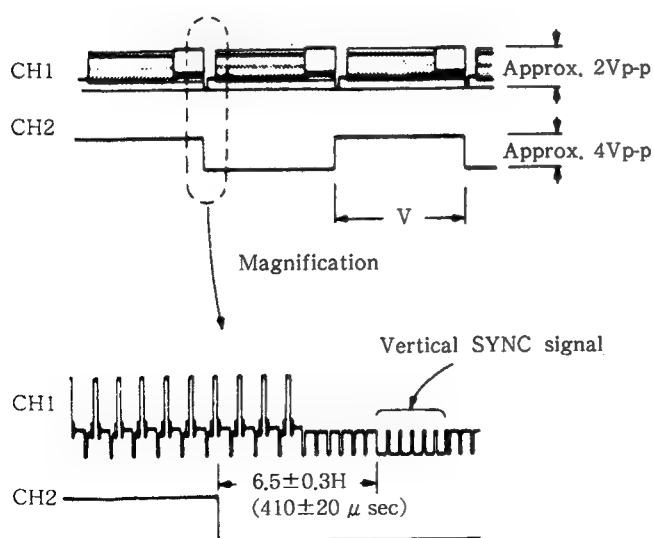


Fig. 9-4. Switching position adjustment

9-4-3. Playback SP/LP mode Adjustment (CM-13 Board)

| | |
|----------------------|---|
| Mode | Various playback (CUE) |
| Signal | Alignment tape : For operation confirmation (SP mode : WR5-3CSP) (LP mode : WR5-3CL) |
| Measurement Point | Pin ② and ③ of IC302 |
| Measuring Instrument | Digital voltmeter |
| Adjusting Element | RV301 |
| Specified Value | $\frac{(V_s + V_L)}{2}$ |

Adjusting method :

- 1) Set S602 (SP/LP) to LP, then playback an SP mode tape (WR5-3CSP) in cue mode.
- 2) Measure the voltage at IC302 Pin ② with a digital voltmeter and record. (V_s)
- 3) Set S602 (SP/LP) to SP, then playback an LP mode tape (WR5-3CL) in cue mode.
- 4) Measure the voltage at IC201 Pin ② with a digital voltmeter and record. (V_L)
- 5) Adjust RV301 so that the voltage at Pins ③ of IC302 is $(V_s + V_L) / 2$.

9.5. VIDEO ADJUSTMENT

As a rule, video system adjustment should be performed in accordance with the following order. The color video signal supplied from the pattern generator is used as video input signal for video system adjusting in the recording mode. Confirm that the SYNC signal and color burst signal conform to the set-up specifications during adjustment as shown in Fig. 5-2.

[Adjusting order]

1. Playback frequency characteristics adjustment
2. Flying erase check
3. Crystal oscillator fo adjustment
4. SYNC AGC adjustment
5. Y/C separation adjustment
6. Burst frag adjustment
7. Emphasis Input adjustment
8. PB CCD Input level adjustment
9. PB Y level adjustment
10. Y FM carrier frequency adjustment
11. Y FM deviation adjustment
12. AC clip adjustment
13. Chroma Emphasis fo adjustment
14. REC Y recording current adjustment
15. REC C level adjustment
16. Qvasi burst phase adjustment
17. Delay burst phase adjustment
18. REC ATF level adjustment

9-5-1. Playback Frequency Characteristics Adjustment (RP-69 Board)

1. CH1 and CH2 Adjustment

The adjusting element for CH2 is shown in parenthesis [].

| Mode | Playback |
|----------------------|---|
| Signal | Alignment tape : For frequency characteristics adjustment (WR5-2C) |
| Measurement Point | Pin ③ of CN006 External trigger : Pin ④ of CN006 Trigger slope : - [+] |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV004 [RV003] |
| Specified Value | The ratio between the 5.5MHz level and the 3.58MHz level is 3 : 4. |

Adjusting method :

- 1) Adjust RV004 [RV003] so that the ratio of the 3.58MHz level and 5.5MHz level is 4 : 3 [4 : 3].

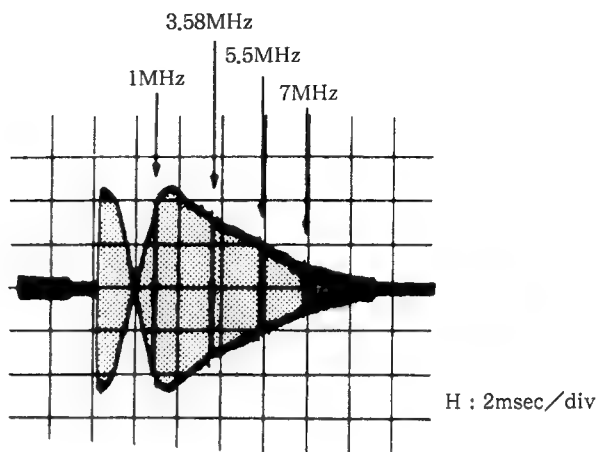


Fig. 9-6. Playback frequency characteristics adjustment

2. CH1' Adjustment

| Mode | Playback pause (Still) |
|----------------------|---|
| Signal | Alignment tape : For frequency characteristics adjustment (WR5-6N) |
| Measurement Point | Pin ① of CN006 External trigger : Pin ④ of CN006 Trigger slope : + |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV201 |
| Specified Value | The ratio between the 5.5MHz level and the 3.58MHz level is 3.5 : 4 |

Adjusting method :

- 1) Short the equivalent to Pin ③ of CN109 on Board FR-38 and Pin ② (Test 2 mode).
- 2) Adjust RV201 so that the ratio between the 5.5MHz level and the 3.58MHz level is 3.5 : 4.

9-5-2. Flying Erase Check (RP-69 Board)

| | |
|----------------------|---|
| Mode | Recording |
| Signal | Arbitrary |
| Measurement Point | Pin ② of CN001 |
| Measuring Instrument | Frequency counter and oscilloscope |
| Specified Value | Frequency : $8.3 \pm 0.5\text{MHz}$ Voltage : Approx. 8Vp-p or more |

- Note :** 1) Use an MP type tape.
2) Connect a frequency counter through a high input impedance ($1\text{M}\Omega$ or more), low-capacitance (10pF or less) buffer amp (oscilloscope or the like).

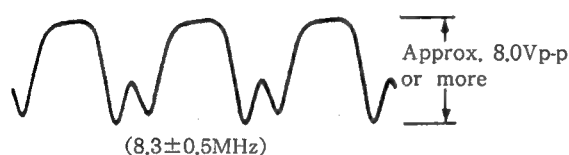


Fig. 9-7. Flying erase check

9-5-3. Crystal Oscillator fo Check (VI-101 Board)

| | |
|----------------------|---|
| Mode | Playback |
| Signal | Alignment tape : For operation confirmation (WR5-3CSP) |
| Measurement Point | Pin ⑩ of IC001 |
| Measuring Instrument | Frequency counter |
| Specified Value | $4433619 \pm 150\text{Hz}$ |

- Note :** Connect the frequency counter through a buffer having high impedance (approx. $10\text{M}\Omega$) and low capacity (less than 10pF).

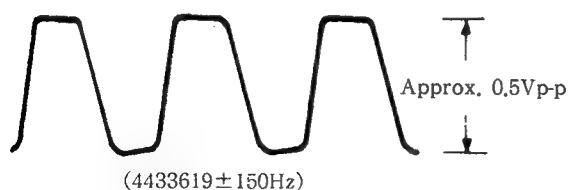


Fig. 9-8. Crystal oscillator fo check

9-5-4. SYNC AGC Adjustment (VI-101 Board)

| | |
|----------------------|---------------------------|
| Mode | E-E |
| Signal | Color bar |
| Measurement Point | Pin ④ of IC001 |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV500 |
| Specified Value | $0.5 \pm 0.02\text{Vp-p}$ |

- Note :** VIDEO OUT terminal (CNJ102 on PI-24 board) should be terminated with 75Ω .

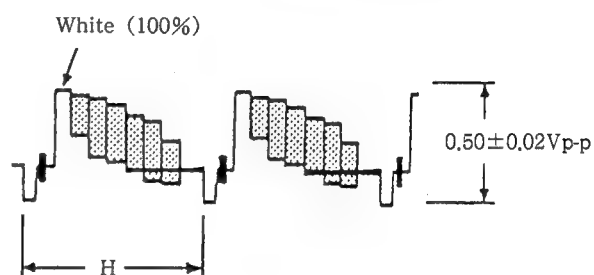


Fig. 9-9. SYNC AGC adjustment

9-5-5. Y/C Separation Adjustment (VI-101 Board)

| | |
|----------------------|--|
| Mode | E-E |
| Signal | Color bar |
| Measurement Point | Pin ⑤ of IC001 |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV001 |
| Specified Value | Under 150mVp-p (residual chroma component) |

Adjusting method :

- 1) Adjust RV001 so as to minimize the residual chroma component.

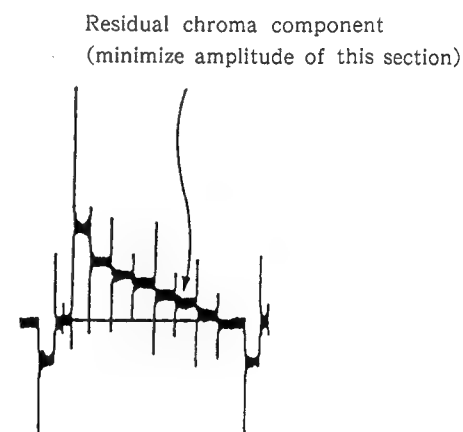


Fig. 9-10. Y/C separation adjustment

9-5-6. Burst Frag Adjustment (VI-101 Board)

| | |
|----------------------|--|
| Mode | Recording |
| Signal | Color bar |
| Measurement Point | CH1 : Pin ⑤ of IC001 (REC C RF OUT) CH2 : Pin ⑧ of IC001 (BF OUT) |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV002 |
| Specified Value | a=b (Refer to Fig. 5-9.) |

Adjusting method :

- 1) Use RV002 to match the falling edge of the CH2 burst pulse to the center of the CH1 burst signal.
(See Figure 5-9.)

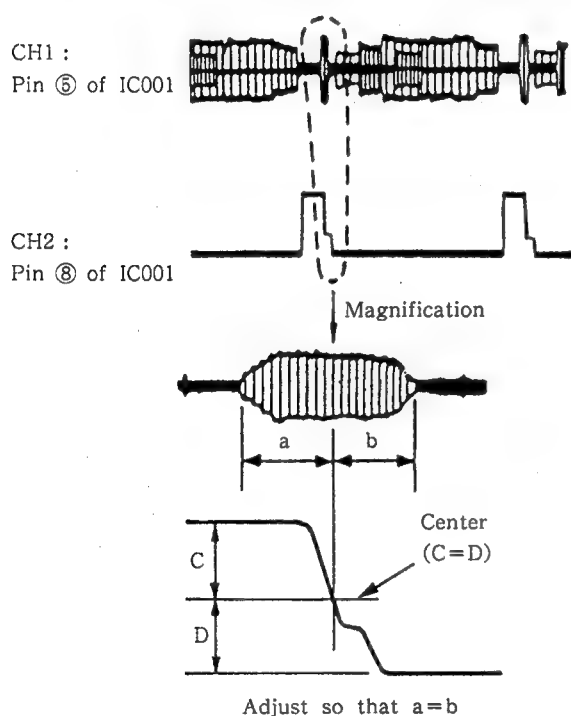


Fig. 9-11. burst frag

9-5-7. Emphasis Adjustment (VI-101 Board)

| | |
|----------------------|------------------------|
| Mode | E-E |
| Signal | Color bar |
| Measurement Point | Pin ④ of IC001 |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV003 |
| Specified Value | $0.5 \pm 0.02 V_{p-p}$ |

Adjusting method :

- 1) Adjust to $0.50 \pm 0.02 V_{p-p}$ with RV003.

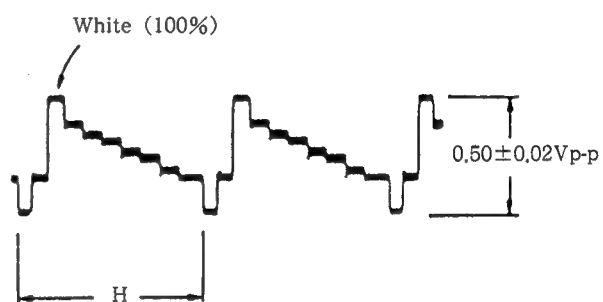


Fig. 9-12. Emphasis input level adjustment

9-5-8. PB CCD Input Level Adjustment (VI-101 Board)

| | |
|----------------------|--|
| Mode | Playback |
| Signal | Alignment tape for operation confirmation (WR5-3CSP) color bar section |
| Measurement Point | Pin ④ of IC001 |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV006 |
| Specified Value | $0.5 \pm 0.02 V_{p-p}$ |

Adjusting method :

- 1) Adjust to $0.50 \pm 0.02 V_{p-p}$ with RV006.

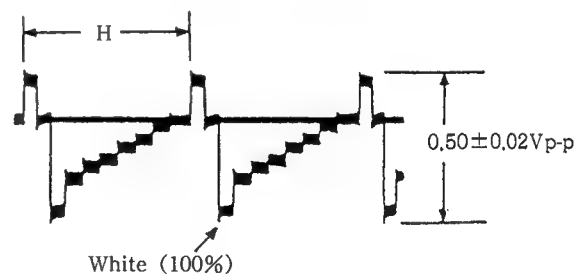


Fig. 9-13. PB CCD input level adjustment

9-5-9. PB Y Level Adjustment (VI-101 Board)

| | |
|----------------------|---|
| Mode | Playback |
| Signal | Alignment tape : For operation confirmation (WR5-3CSP) Color bar section |
| Measurement Point | Pin ③ of CN006 |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV007 |
| Specified Value | $1.00 \pm 0.05 \text{Vp-p}$ |

Note : 1) The VIDEO OUT terminal (CNJ102 on the PI-24 board) must be terminated in 75Ω .

Adjusting method :

- 1) Adjust to $1.00 \pm 0.05 \text{Vp-p}$ with RV007.

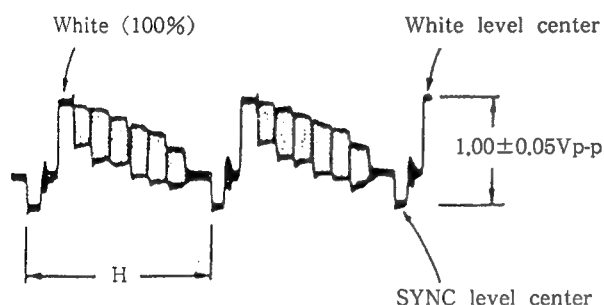


Fig. 9-14. PB Y level adjustment

9-5-10. Y FM Carrier Frequency Adjustment (VI-101 Board)

| | |
|----------------------|----------------------------|
| Mode | E-E |
| Signal | Non-signal |
| Measurement Point | Pin ⑤ of IC001 |
| Measuring Instrument | Frequency counter |
| Adjusting Element | RV005 |
| Specified Value | $4.38 \pm 0.02 \text{MHz}$ |

Adjusting method :

- 1) Adjust to $4.38 \pm 0.02 \text{MHz}$ with RV005.
- 2) Perform "Deviation Adjustment" and "Emphasis Adjustment" after this adjustment.



Fig. 9-15. Y FM Carrier Frequency Adjustment

9-5-11. Y FM Deviation Adjustment (VI-101 Board)

| | |
|----------------------|---|
| Mode | E-E |
| Signal | Color bar |
| Measurement Point | Pin ③ of CN006 : VIDEO OUT |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV004 |
| Specified Value | Playback level : $1.00 \pm 0.05 \text{Vp-p}$ |

- Note :**
- 1) "PB Y Level Adjustment" and "Y FM Carrier Frequency Adjustment" should have been completed.
 - 2) VIDEO OUT terminal (CNJ102 on PI-24 board) should be terminated with 75Ω .
 - 3) EDIT switch (SW022 on FR-38 board) should be turned OFF.

Adjusting method :

- 1) Record color bar signal.
- 2) Play back the recorded signal.
- 3) Confirm the playback output level.
Specified value : $1.00 \pm 0.05 \text{Vp-p}$
- 4) If the specified value is not satisfied, repeat steps 1) to 3) after turning RV004 as shown in the table below. (Table. 9)

| | RV004 turning direction |
|-----------------------------------|-------------------------|
| When larger than specified value | Clock wise (↻) |
| When smaller than specified value | Counter clock wise (↻) |

Table. 9.

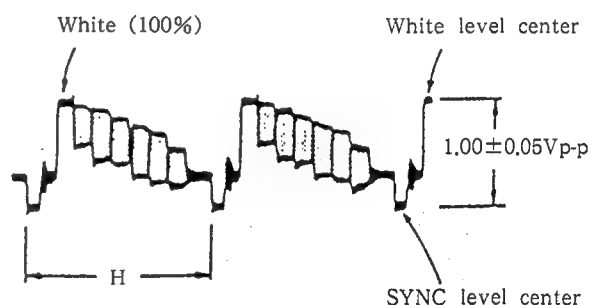


Fig. 9-16. Y FM deviation adjustment

9-5-12. AC Clip Check (VI-101 Board)

| | |
|----------------------|----------------|
| Mode | Recording |
| Signal | Color bar |
| Measurement Point | Pin ⑤ of IC001 |
| Measuring Instrument | Oscilloscope |
| Specified Value | $240 \pm 10\%$ |

Adjusting method :

- 1) Confirm that the white (100%) peak of the waveform output from pin ⑤ of IC001 is $240 \pm 10\%$.

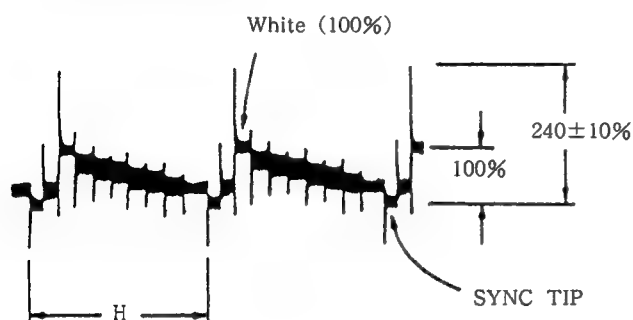


Fig. 9-17. AC clip check

9-5-13. Chroma Emphasis fo Adjustment (VI-101 Board)

| | |
|----------------------|----------------------|
| Mode | E-E |
| Signal | Color bar |
| Measurement Point | Pin ⑤ of IC001 |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | FL002 |
| Specified Value | Minimum fo component |

Adjusting method :

- 1) Adjust FL002 so that the amplitude of the flat section of the red portion become minimum.

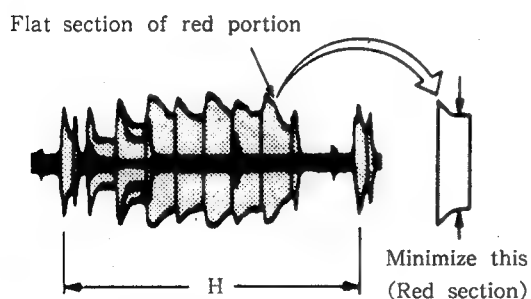


Fig. 9-18. Chroma emphasis fo adjustment

9-5-14. REC Y Level Adjustment (VI-101 Board)

| | |
|----------------------|-------------------------|
| Mode | E-E |
| Signal | Non-signal |
| Measurement Point | Pin ② of CN003 |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV200 |
| Specified Value | $0.31 \pm 0.01 V_{p-p}$ |

9-5-15. REC C Level Adjustment (VI-101 Board)

| | |
|----------------------|-----------------------|
| Mode | E-E |
| Signal | Color bar |
| Measurement Point | Pin ③ of CN003 |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV201 |
| Specified Value | $150 \pm 10 mV_{p-p}$ |

- Note :**
- 1) Be sure to always perform REC AFM level confirm and REC ATF level confirm after performing REC C level adjustment.
 - 2) Use MP-type tape.

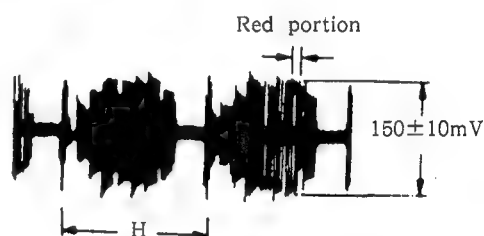


Fig. 9-19. REC C level adjustment

9-5-16. Quasi Burst Phase Adjustment (VI-101 Board)

1. Method using vectorscope

| Mode | Playback |
|----------------------|--|
| Signal | Tape with recorded color bars |
| Measurement Point | VIDEO OUT terminal |
| Measuring Instrument | Vectorscope |
| Adjusting Element | RV402 |
| Specified Value | Phase of color luminance points in quasi burst mode is same as phase of color luminance points in through burst mode |

Adjusting method :

- 1) Make a record of the phase of the color luminance points (especially red). (Through burst mode)
- 2) Connect pin ② of IC400 and pin ① of IC400 with a diode (1SS119, etc.). (Quasi burst mode)

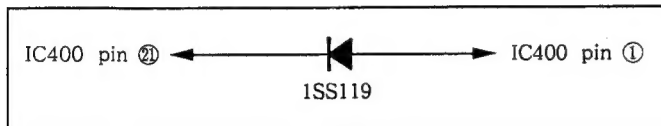


Fig. 9-20.

- 3) Adjust RV402 so that the phase of the color luminance points is the same as the phase recorded in 1).
- 4) Remove the diode.

2. Method using monitor TV

| Mode | Playback |
|----------------------|-----------------------------------|
| Signal | Tape with recorded color bars |
| Measurement Point | Confirmation on monitor TV screen |
| Measuring Instrument | screen |
| Adjusting Element | RV402 |
| Specified Value | Minimum chroma flickering |

Connection :

- 1) Connect pin ② of IC400 and pin ④ of CN002 (RF SWP) using a diode (1SS119, etc.).

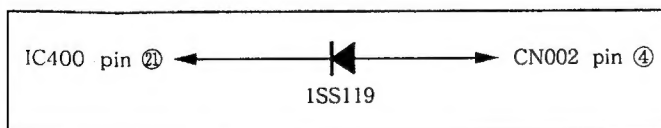


Fig. 9-21.

Adjusting method :

- 1) Set the color level of the monitor TV to maximum.
- 2) Adjust RV402 for minimum chroma flickering.

9-5-17. Delay Burst Phase Adjustment (VI-101 Board)

| Mode | Playback pause (LP mode) |
|----------------------|--|
| Signal | Alignment tape for operation check (WR5-3CL), color bars |
| Measurement Point | Confirmation on monitor TV screen |
| Measuring Instrument | screen |
| Adjusting Element | RV403 |
| Specified Value | Minimum chroma flickering |

Adjusting method :

- 1) Set the color level of the monitor TV to maximum.
- 2) Rotate RV403 fully in the counterclockwise direction (○).
- 3) Slowly rotate RV403 in the clockwise direction and stop at the position where there is minimum chroma flicker.

9-5-18. REC ATF Level Confirmation (CM-13 Board)

| Mode | REC |
|----------------------|----------------------------|
| Signal | Non-signal |
| Measurement Point | Pin ⑧ of CN401 |
| Measuring Instrument | Oscilloscope |
| Specified Value | $380 \pm 40 \text{ mVp-p}$ |

Note : Use MP type tape.

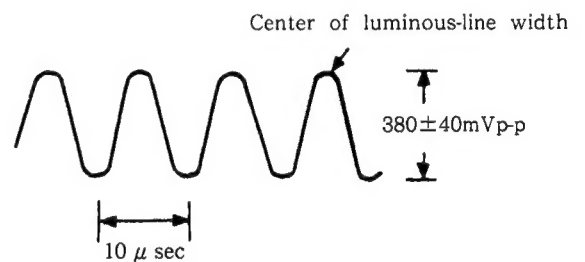


Fig. 9-22. REC ATF level confirmation

9-6. AUDIO SYSTEM ADJUSTMENTS

- Perform the adjustment by using the color bar signal as video signal input.

[Connection of audio measuring instruments]

Connect audio system measuring instruments as shown in the following diagram in addition to the video system measuring instruments.

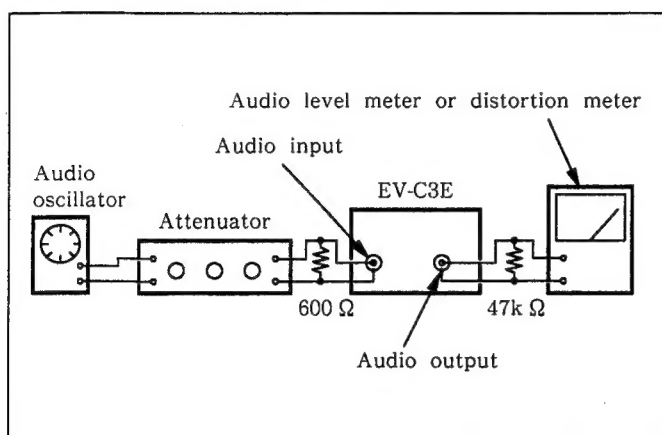


Fig. 9-23.

9-6-1. AFM Audio System Adjustment

[Adjusting order]

1. AFM carrier frequency adjustment
2. PB Level check
3. E-E output level check
4. Overall-level characteristics check
5. Overall-frequency characteristics check
6. Overall-distortion check
7. Overall-noise level check

1. AFM Carrier Frequency Adjustment (AF-20 Board)

| | |
|----------------------|------------------------------------|
| Mode | Recording (SP mode) |
| Signal | Non-signal |
| Measurement Point | Pin ⑬ of CN502 |
| Measuring Instrument | Frequency counter and oscilloscope |
| Adjusting Element | RV503 |
| Specified Value | $1500 \pm 3\text{kHz}$ |

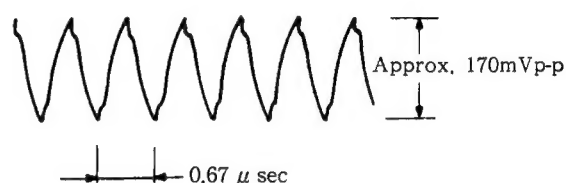


Fig. 9-24. AFM carrier frequency adjustment

2. PB Level Check (AF-20 Board)

| | |
|----------------------|---------------------------------|
| Mode | Playback |
| Signal | Alignment tape (WR5-3CSP) |
| Measurement Point | CNJ102 RCA JACK Audio output |
| Measuring Instrument | Audio level meter |
| Specified Value | $-7.5 \pm 3\text{dBs}$ |

3. E-E Output Level Check

| | |
|----------------------|--|
| Mode | E-E |
| Signal | 400Hz, -7.5dBs : Audio input |
| Measurement Point | CNJ102 RCA JACK Audio output |
| Measuring Instrument | Audio level meter |
| Specified Value | $-7.5 \pm 2\text{dBs}$ |

4. Overall Level Characteristics Check

| | |
|----------------------|---------------------------------|
| Mode | Self-recording (SP mode) |
| Signal | 400Hz, -7.5dBs : Audio input |
| Measurement Point | CNJ102 RCA JACK Audio output |
| Measuring Instrument | Audio level meter |
| Specified Value | -7.5±3dBs |

- Checking method :
- 1) Record the signal.
 - 2) Play back the recorded section.
 - 3) Confirm that the audio output level is -7.5±3dBs.

5. Overall Frequency Characteristics Check

| | |
|----------------------|--|
| Mode | Self-recording |
| Signal | Ⓐ 400Hz, -20dBs Ⓑ 30Hz, -20dBs Ⓒ 14kHz, -20dBs Audio output |
| Measurement Point | Audio output |
| Measuring Instrument | Audio level meter |
| Specified Value | When 400Hz playback output level is 0dB, 30Hz and 14kHz playback output level should be 0±3dB |

- Checking method :
- 1) Record signals of Ⓐ to Ⓒ in sequence.
 - 2) Play back the recorded section.
 - 3) Confirm that when the 400Hz playback output level is 0dB, the 30Hz and 14kHz playback output levels are both 0±3dB.

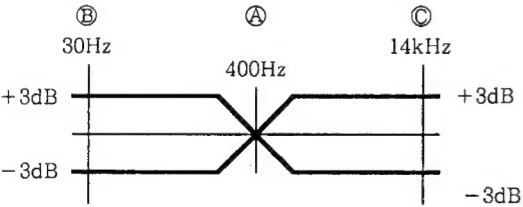


Fig. 9-25. AFM overall frequency characteristics check

6. Overall Distortion Check

| | |
|----------------------|---------------------------------|
| Mode | Self-recording |
| Signal | 400Hz, -7.5dBs : Audio input |
| Measurement Point | Audio output |
| Measuring Instrument | Distortion meter |
| Specified Value | Less than 0.5% |

- Checking method :
- 1) Record the signal.
 - 2) Play back the recorded section.
 - 3) Distortion should be less than 1.0%.

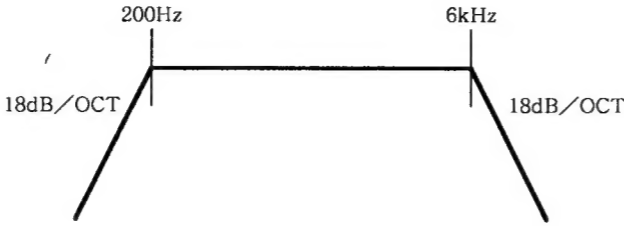


Fig. 9-26. Distortion measuring filter

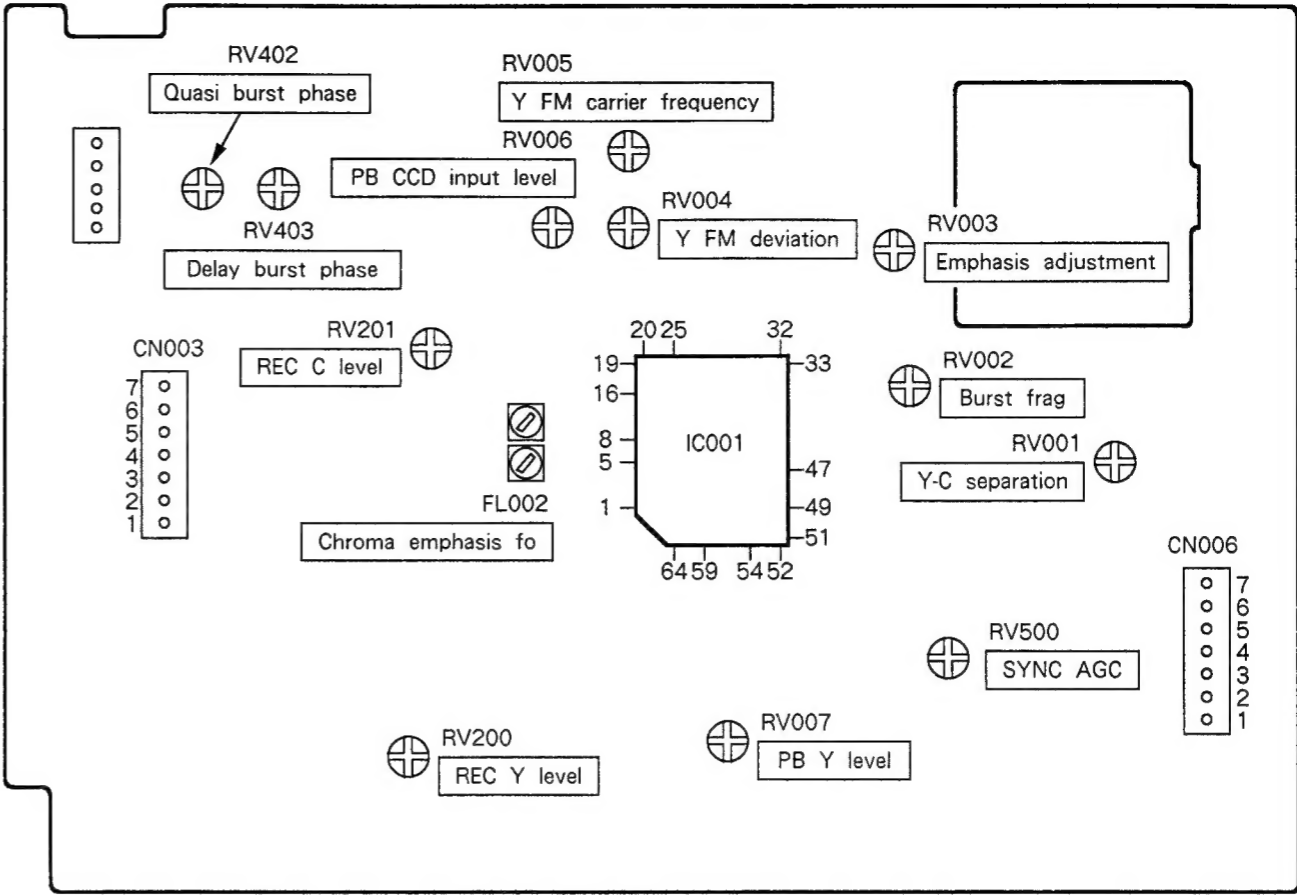
7. Overall Noise Level Check

| | |
|----------------------|--|
| Mode | Self-recording and playback |
| Signal | Non-signal Plug in shorting plugs to Audio input |
| Measurement Point | Audio output |
| Measuring Instrument | Audio level meter |
| Specified Value | Less than -67.5dBs* |

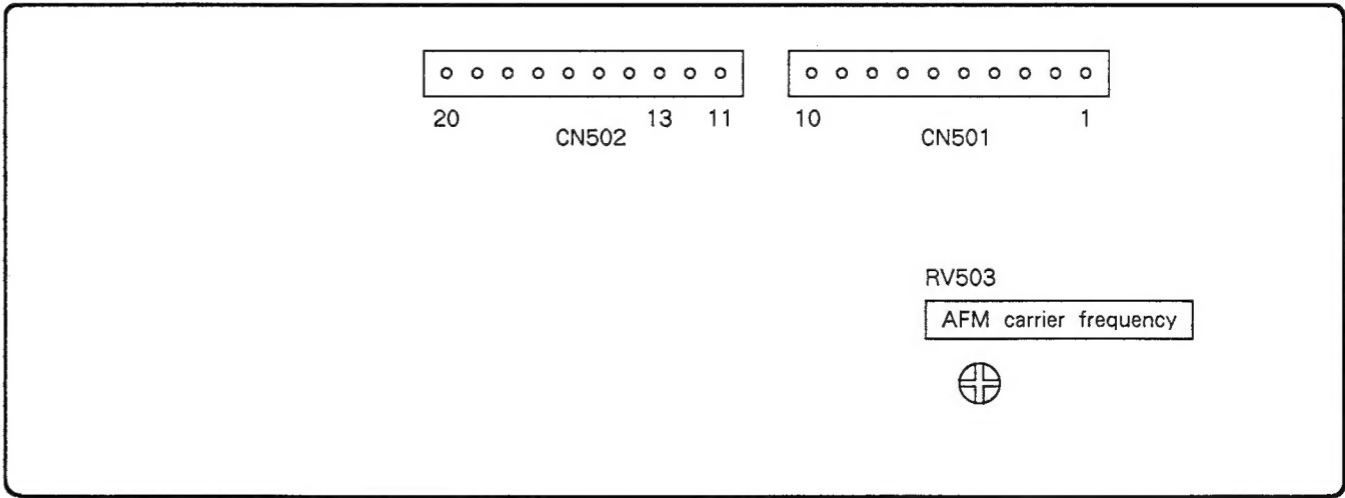
- Checking method :
- 1) Record the signal.
 - 2) Play back the recorded section.
 - 3) Noise level should be less than -67.5dBs.*
- * This is the value when an IHF-A hearing sensitivity correction filter is used.

9-7. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

VI-101 BOARD (COMPONENT SIDE)

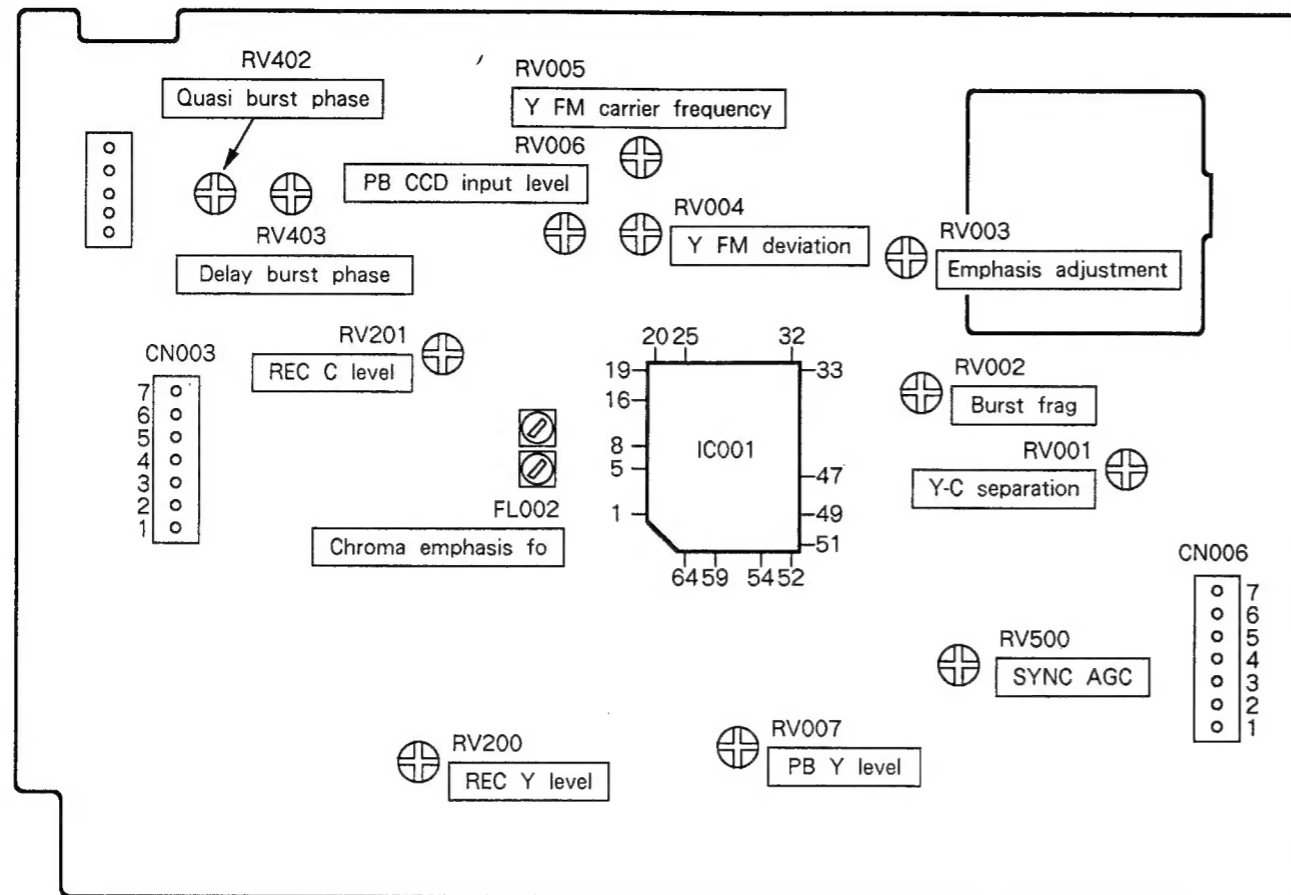


AF-20 BOARD (COMPONENT SIDE)

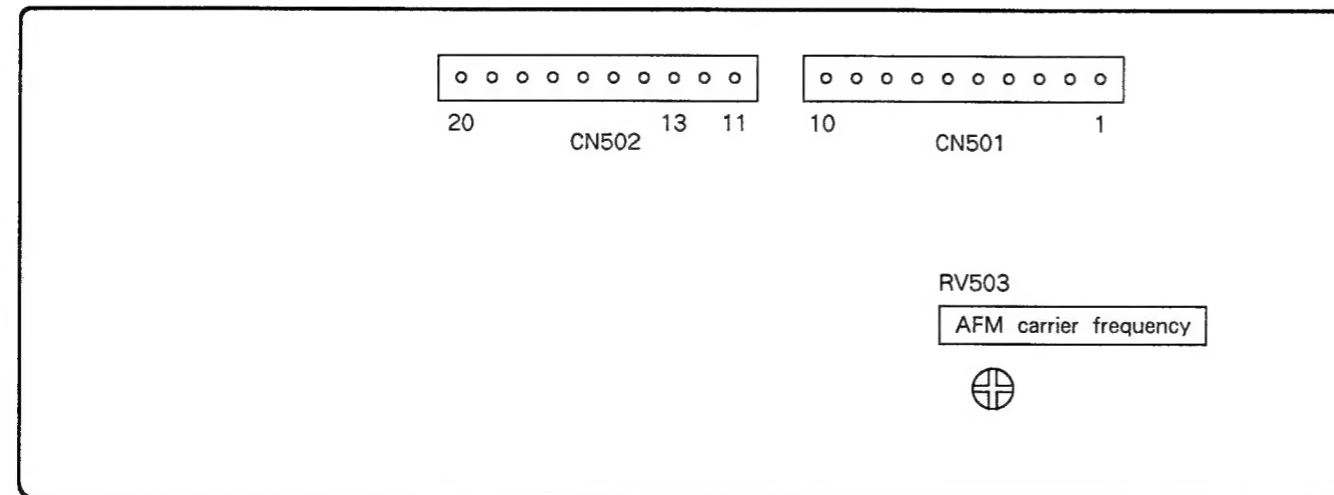


9-7. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

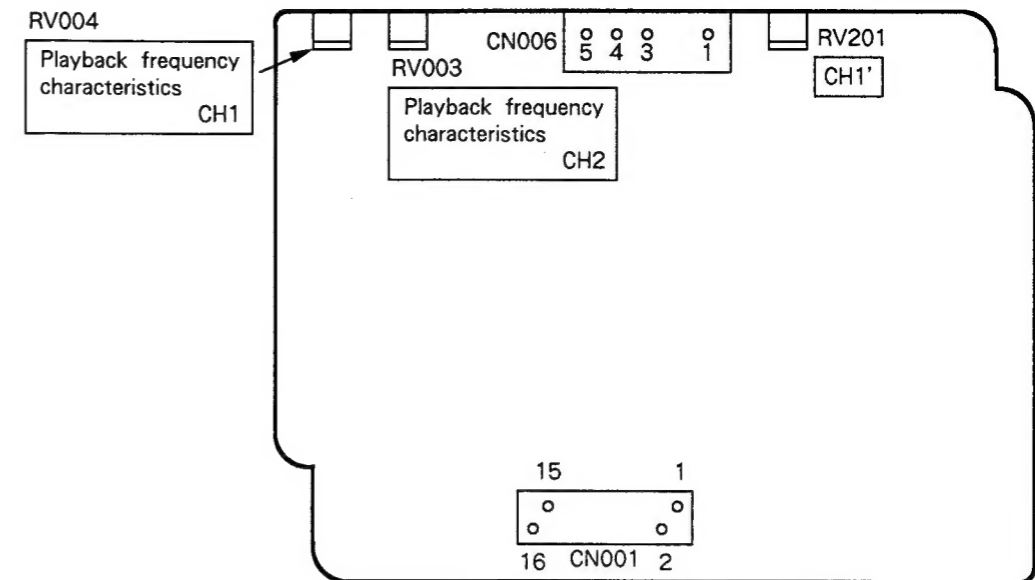
VI-101 BOARD (COMPONENT SIDE)



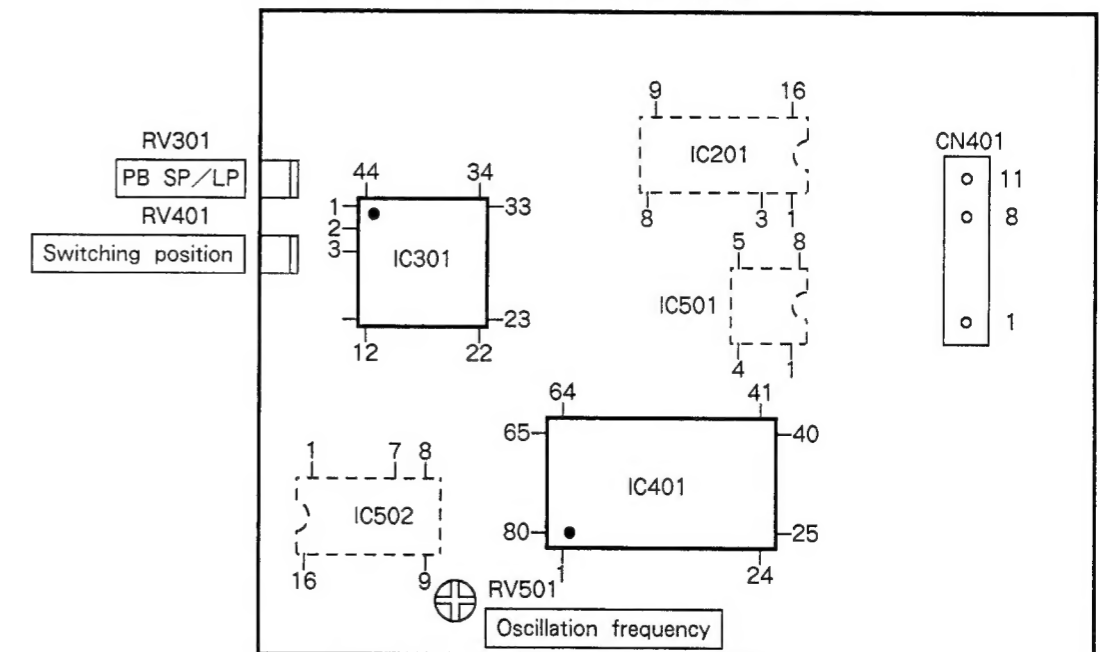
AF-20 BOARD (COMPONENT SIDE)



RP-69 BOARD (COMPONENT SIDE)



CM-13 BOARD (COMPONENT SIDE)



FR-38 BOARD (COMPONENT SIDE)

